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Farmington
Resource Management Plan

MARCH 1987

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ALBUQUERQUE DISTRICT
FARMINGTON RESOURCE AREA

BLM-NM-PT-87-005-4410

March 3, 1849

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
FARMINGTON RESOURCE AREA
Caller Service 4104
Farmington, New Mexico 87499

NOTICE

Enclosed for your review and comment is the Draft Farmington Resource Management Plan (RMP) and Environmental Impact Statement (EIS). This Resource Management Plan is an attempt to integrate all resources into a single unified program of management after considering a reasonable range of alternatives. Your review and comments are needed at this time to ensure that your concerns have been considered in the planning process.

Please direct your written comments to the RMP Team Leader, Bureau of Land Management, Farmington Resource Area, Caller Service 4104, Farmington, New Mexico 87499-4104. Written comments must be postmarked no later than June 3, 1987. Also use this address when requesting further information on materials referenced in the Draft RMP/EIS.

Oral comments will be accepted at the following public hearings:

DATE & TIME	CITY	LOCATION
May 4, 1987 7 p.m.	Grants, New Mexico	Holiday Inn I-40 Exit 85
May 5, 1987 10 a.m.	Crownpoint, New Mexico	Navajo Skill Center
May 6, 1987 7 p.m.	Farmington, New Mexico	Civic Center
May , 1987 7 p.m.	Cuba, New Mexico	Municipal Complex Meeting Room

A 10-minute time limit will be placed on oral comments. Oral comments should be accompanied by a written synopsis of the presentation. Written and oral comments will be fully considered and evaluated in preparation of the Proposed Resource Management Plan and Final Environmental Impact Statement.

If changes are minor, the Proposed Resource Management Plan and Final Environmental Impact Statement will only include those changes and will not be a full reprint of the Draft RMP/EIS. For this reason, reviewers are requested to retain their copy of the Draft RMP/EIS for use in conjunction with the Proposed RMP and Final Environmental Impact Statement.

Ron Fellows

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FARMINGTON RESOURCE MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

MARCH 1987

PREPARED BY:
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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Farmington
Resource Management Plan
And
Environmental Impact Statement

Draft (X) Final ( )

The United States Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (X) Legislative ( )

2. Abstract: This Draft Resource Management Plan and Environmental Impact Statement describes and analyzes four alternatives for managing the public lands and resources in the Farmington Resource Area, New Mexico. They are: (1) Continuation of Current Management (No Action) Alternative, (2) Resource Conservation Alternative, (3) Resource Production Alternative, and (4) Preferred Alternative.

3. Comments have been requested from the individuals, groups and agencies shown on the distribution list in Chapter 4.

4. For further information contact:

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5. Date Draft filed with Environmental Protection Agency: FEB 26 1987

6. Comments on the Draft Resource Management Plan and Environmental Impact Statement must be postmarked no later than: JUN 3 1987

Recommended:

L. Paul Applegate

L. Paul Applegate
District Manager
Albuquerque District Office

Approved:

Monte G. Jordan
Acting State Director
New Mexico State Office

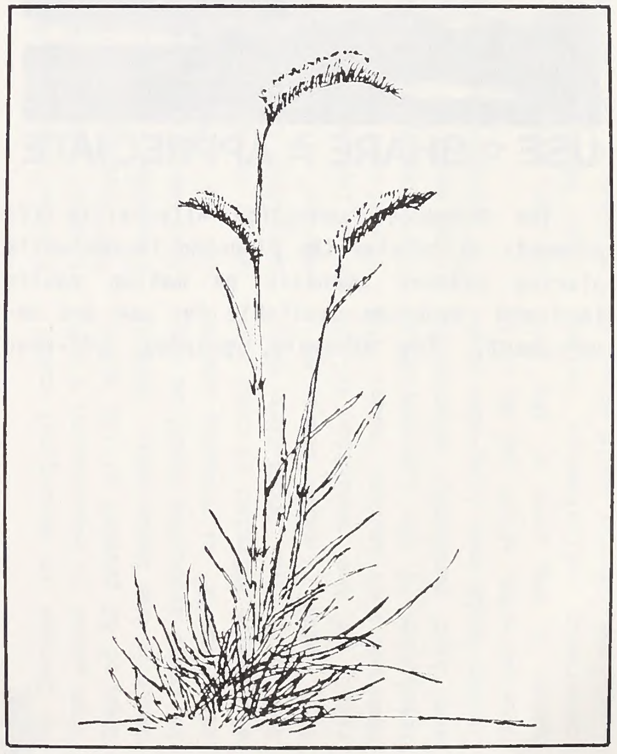
SUMMARY

The Farmington Resource Management Plan identifies the proposed management direction for administration of public lands within the Bureau of Land Management's Farmington Resource Area for the next 10 to 20 years. Located in northwestern New Mexico, the Farmington Resource Area is directly responsible for managing 1,508,450 acres of federal surface estate and 3,000,000 acres of mineral estate within San Juan, McKinley, Rio Arriba, and Sandoval counties.

Preparation of this document was guided by Bureau planning regulations issued under the authority of the Federal Land Policy and Management Act of 1976. The plan primarily focuses on seven planning issues and the decisions needed to resolve them. The issues identified have been a source of controversy and concern regarding the use and management of public land resources. The seven issues are: (1) Land Ownership Adjustments; (2) Home Use Fuel Sources; (3) Special Management Areas; (4) Coal Leasing Suitability Assessment; (5) Transportation (public access and off-road vehicle designations); (6) Vegetative Uses; and (7) Right-of-Way Corridors and Windows. The planning issues are further described and defined in the Introduction and Chapter 1.

To assist decision-makers and the general public in choosing appropriate solutions to the planning issues, four alternatives or management options are proposed - Current Management (A), Resource Conservation (B), Resource Production (C) and the Preferred Alternative (D). The range of alternatives was limited in scope to those that span a reasonable and implementable way of managing public lands. The principles of multiple use and sustained yield were observed in alternative formulation and environmental values were protected to the extent required by applicable laws, regulations, and policies.

The Current Management Alternative (A) constitutes the no action alternative. This alternative describes the current management of the resources affected by the planning issues. As with all alternatives, other resources would continue to be managed as described in the continuing management guidance section of Chapter 1. This alternative provides a baseline for comparison of other alternatives. The management direction for this alternative was derived from existing management decisions and guidance developed



in the San Juan and Chaco Management Framework Plans. Like the other alternatives, the Current Management Alternative would allow future management of the FRA to be responsive to changing regulations and policies.

The Resource Conservation Alternative (B) attempts to resolve the planning issues while placing primary emphasis on protecting natural and cultural resource values. The outdoor recreation, visual resources, wilderness, paleontology, cultural resources, wildlife, watershed, and other resource conservation-oriented programs are emphasized. The goal of this alternative is to change present management direction so the seven issues are resolved in a manner that places highest priority on the maintenance or improvement of environmental values. Multiple use management would continue in areas not emphasized under this alternative.

The Resource Production Alternative (C) attempts to resolve the planning issues while placing primary emphasis on making public land and resources available for use and development. The minerals, grazing, off-road vehicle, forestry, and similar production-oriented programs are emphasized. The goal of this alternative is to change management direction so the seven issues are resolved in a manner that generally places highest priority on the production of resources from the public lands. Multiple use management would continue in areas not designated for special management attention.

The Preferred Alternative (D) is designed to provide balanced management direction. The goal is to resolve the seven issues by providing for a combination of resource uses that would protect important environmental values and sensitive resources while at the same time allow development of resources which provide commercial goods and services. This alternative incorporates concepts proposed in both the resource conservation and resource production alternatives as well as actions intermediate between the two.

In compliance with the National Environmental Policy Act of 1969, an assessment of potential impacts of implementing each alternative is provided in the following table. The table identifies the beneficial and adverse effects of implementing each alternative as a basis for comparison and to adequately consider the environmental consequences.

One important consideration to note in conclusion is that Alternative D has been selected by the BLM as the preferred alternative for future management of public lands. After the 90-day public review and comment period, the next step in the planning process is preparation of a proposed Resource Management Plan and a final Environmental Impact Statement.

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
MINERALS			
The main potential long-term impact would consist of conflicts associated with the creation of up to 73,223 additional acres of split estate lands. A total of 39 competitive coal tracts would be carried forward for further consideration for leasing. Only three percent of the Resource Area would be closed to oil and gas development.	Up to 98,945 acres of split estate land, which could hinder mineral development, would be created. A total of 14 coal tracts would be brought forward for further consideration for leasing. While there would be a three percent decrease in lands available for oil and gas development, the impacts are considered insignificant.	Up to 396,800 acres of split estate lands would be created. Seventeen coal tracts would be brought forward for further consideration for leasing.	Up to 325,000 acres of split estate lands would be created. A total of 17 coal tracts would be brought forward for further consideration for leasing. Development of the Coal Belt SMA and the ROW windows would benefit the coal program.
RANGELAND			
No changes in ecological condition would be expected on a minimum of 62 percent of the allotments in the issue area. Impacts to range resources would be negative to "I" allotments, and to allotments affected by coal mining activities. Short-term negative impacts would occur as a result of the resolution of the home use fuel sources issue. The resolution of the transportation and land ownership adjustments issues could have long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue. Long-term impacts would occur as a result of the resolution of the	A reduction of 25,822 AUMs is estimated for the "I" and selected "C" category allotments. The increased vegetative production that would occur in the long term on the "I" category allotments would be reserved for improved watershed condition and enhancement of wildlife habitat. Short-term improved vigor of perferred livestock forage and long-term improvement in ecological condition would be anticipated on the "I" category allotments. If coal mining takes place, long-term impacts would occur on a maximum of ten percent of the allotments and two percent of the	An increase of 5,509 AUMs is estimated for the "I" category grazing allotments. Long-term improvement in ecological condition and increases in vegetative production would be expected on these allotments. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment issue on a maximum of 2.3 percent of the federal lands in the issue area, but they would be mitigated by reclamation. The resolution of the transportation and land ownership adjustments issues would have minor long-term negative effects, which can be mitigated in the case of the land	A long-term reduction of 15,174 AUMs is estimated for the "I" and selected "C" category grazing allotments. In the long term the reduced AUMs would be partially restored on "I" allotments. In the short term, vigor of preferred livestock forage and ecological condition would improve on the "I" allotments. In the long term, resolution of resource conflicts would be expected on the "I" allotments. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment issue on a maximum of 2.3 percent of the federal lands in the issue area, but they would be mitigated

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
coal leasing suitability assessment issue, but would mitigated by reclamation after mining is completed.	federal lands in the issue area, but they would be mitigated by reclamation. The resolution of the transportation and land ownership adjustments issues could have minor long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue.	ownership adjustments issue. Resolving the home use fuel sources issue would increase negative impacts.	by reclamation. The resolution of the fuel sources and land ownership adjustments issues would have minor long-term negative effects, which would be mitigated by proper silvicultural practices and stipulations and possible exchange agreements, respectively. Negative impacts associated with ORV designations are not considered significant overall, but could impact localized areas.
LANDS			
Land ownership adjustments could occur on approximately five percent (73,223 acres) of the total public lands in the Resource Area which would result in overall beneficial impacts to public land management. Creation of split estate lands due to adjustments could create moderate impacts on the granting of ROWs and approvals for the development of mineral resources on those lands.	A total of 98,945 acres are identified for disposal. Long-term positive impacts of the proposed acquisition, disposal, and rights-of-way designations would improve management efficiency and effectiveness. Long-term negative impacts would consist of increased conflicts resulting from the creation of additional split estate land.	396,582 acres of public lands are identified for exchange or sale. Only 5,527 acres of non-public lands are identified for high-priority acquisition. All other non-BLM lands in the retention zone would be considered for acquisition as a second priority. Long-term positive impacts of these actions would be improved management efficiency and effectiveness on consolidated lands. The long-term negative impact would be the potential increased conflicts caused by the creation of additional split estate lands.	A total of 119,313 acres are identified for acquisition while 324,942 acres are identified for disposal. Four right-of-way windows are identified. These actions will have positive effects. Long-term positive impacts of these actions would be improved management efficiency and effectiveness on consolidated lands. The long-term negative impact would be the potential increased conflicts caused by the creation of additional split estate lands.
FORESTRY			
Continuation of present low-level forest and woodland management	Short-term impacts would be a reduction in the amount of fuelwood	About 250 to 300 acres of fuelwood would be available for	Less than 20,000 acres of productive woodland and forest would

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
practices may result in continued unauthorized fuelwood cutting and possible long-term reduction in areas of woodland forest types. About 2,500 cords of fuelwood per year could be harvested on a sustained yield basis in the RA.	available to the public and a possible increase in unauthorized cutting of green trees. A potential long-term impact would be the deterioration of woodland sites due to reduced management.	harvest each year. Silvicultural treatments would be employed to maintain and enhance woodlands.	leave federal ownership. Both forest and woodland management would be improved by the initiation of silvicultural treatments.
SOILS			
Land ownership adjustments would not result in significant impacts to soils resources if soil improvement and erosion control structures are maintained. Natural erosion would continue within badlands. Coal mining would result in significant long-term disturbance to 2.4 percent of the soils in the Resource Area, but the impacts would be mitigated by reclamation efforts. Impacts to soils from off-the-road vehicular travel can be mitigated by emergency closure. Sediment yields and soil erosion would continue at the present rate or could increase on grazing lands in poor ecological condition.	Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Reductions in erosion and sediment production would be expected on 315,303 acres within SMAs. Some natural erosion would continue within badlands. Long-term impacts to about two percent of the soils in the Resource Area would occur from coal mining activities, but the impacts would eventually be mitigated by reclamation efforts. Approximately 21 percent of the public lands could receive protection from ORV impacts. Improvements in negative vegetative conditions should also improve soil conditions.	Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Increases in acreage available for the collection of fuelwood may increase impacts to the soil resource. Long-term impacts to less than one percent of the soils would occur from coal mining activities. The impacts would be mitigated by reclamation efforts. Natural erosion would continue within badlands, and would be accelerated on two SMAs designated for ORV use. Soils would receive long-term positive benefits on "I" category grazing allotments.	Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Off-the-road vehicular travel would not have long-term significant impacts. Increases in acreage available for the collection of fuelwood may increase impacts to the soil resource. Long-term impacts to less than one percent of the soils would occur from coal mining activities. The impacts would be mitigated by reclamation efforts. Reductions in erosion and sediment production would be expected on 132,439 acres within SMAs. Natural erosion would continue within badlands. Long-term decreases in erosion and sediment production would be expected on the "I" category grazing allotments. Short-term increases in erosion and sediment

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
			production would occur on soils within the Right-of-Way Windows SMA.
HYDROLOGY			
Localized long-term impacts to water resources could occur on lands where off-the-road vehicular travel is not restricted. Peak runoff rates would remain high and sediment and salt yields would increase under the current levels of grazing management, resulting in long-term significant impacts.	Improvements in vegetative conditions would result in improvements to water resources. Implementation of habitat management plans on acquired riparian tracts would benefit water resources. Impacts of fuelwood collection would be minimized by designating fuelwood collection areas. ORV "closed" and "limited" designations for approximately 21 percent of the Resource Area may result in slightly decreased sediment and salt yields and runoff rates. Impacts of coal mining would affect less than one percent of the federal surface.	Land ownership adjustments would not result in significant impacts to water resources. Short-term impacts would occur as a result of the fuelwood program. However, watershed improvement would occur in the long term due to rehabilitative measures. Negative impacts from off-the-road vehicular travel on much of the FRA would result in long-term localized increases in sediment and salt yields as well as runoff velocities and volumes. Impacts of coal mining to water resources would affect less than one percent of the federal surface. Runoff would decrease on grazing lands where ecological condition improves. Peak runoff rates would remain high and sediment and salt yields would increase on grazing lands in poor ecological condition.	Land ownership adjustments would not result in adverse impacts to water resources. Implementation of habitat management plans on acquired riparian tracts would benefit water resources. Impacts from fuelwood collection would be mitigated by rehabilitation measures. While the designation of approximately nine percent of the Resource Area as "limited" or "closed" to off-the-road vehicular travel would benefit water resources, designation of the remainder of the public lands within the FRA as "open" to off-the-road vehicular travel could result in increases in peak runoff rates and sediment and salt discharges in localized areas. Impacts of coal mining to water resources would affect less than one percent of the federal surface. Runoff would decrease on grazing lands where ecological condition improves. Peak runoff rates would remain high and sediment and salt yields would in-

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
			crease on grazing lands in poor ecological condition.
AIR QUALITY			
There is no overwhelming impact to air quality as a result of current management practices. However, the cumulative effect from emissions is a concern.	Some improvement in air quality may be expected above that described in Alternative A, however, it is not expected to change substantially.	A reduction in air quality may result due to proposed actions under this alternative. Impacts would be slightly greater than in Alternative A.	Resolution of issues proposed under this alternative are not expected to cause significant impacts to air quality. It is probable that localized areas may suffer short-term degradation of existing air quality due to the cumulative effects of emissions.
SCENIC QUALITY			
There may be a trend of visual resource degradation commensurate with the level of natural resource development, but mitigative measures would be used to reduce negative impacts. The majority of public lands have incurred moderate to high long-term visual contrasts in the characteristic landscape which has resulted in decreased scenic quality in the FRA.	Protection of SMAs and other areas that exhibit high scenic quality and high visual sensitivity would ensure a sample of quality visual resource opportunities in the Resource Area. This would produce positive benefits for scenic quality.	A trend of visual resource degradation commensurate with the level of natural resource development will likely occur with gradual deterioration of scenic quality on the majority of public lands due to visual contrasts in the characteristic landscape.	The designation of additional SMAs that prescribe VRM Class I or II management objectives would enhance and protect a sample of areas that exhibit high scenic quality and high visual sensitivity.
WILDLIFE			
Continuation of present management will not result in short-term changes in wildlife habitat or populations. BLM will continue to meet its legal respon-	A total of 98,948 acres of low-priority wildlife habitat would be sold or exchanged while 101,350 acres of high-priority habitat are identified for acqui-	Up to 396,582 acres of wildlife habitat would be removed from federal ownership. Only 20,369 acres are considered moderate to high priority big game habitat.	Up to 324,000 acres of wildlife habitat would be removed from federal ownership. Approximately 22,200 acres in difficult to manage tracts of high-value big

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
sibilities under the Endangered Species Act. A possible long-term negative impact of this alternative could be the continued decline of candidate or sensitive plant species, due to a lack of special management for these species.	sition. Off-the-road vehicle travel will be limited or excluded from 27,490 acres of threatened or endangered species habitat, which will result in beneficial effects to these species.	Habitat for sensitive plant species would not be managed other than by case-by-case consideration of potential disturbing activities. Overall impacts to the wildlife program would be slight, as existing policy and habitat management plans would remain in effect. A lack of positive management for rare plants could result in long-term negative impacts to these species.	game habitat are identified for disposal while 101,350 acres of habitat are identified for acquisition. Important bald eagle winter roosts would be protected. A sensitive plant HMP would be developed for the Resource Area. A total of 27,490 acres of threatened or endangered species habitat would have off-the-road vehicular travel limitations. These actions should improve wildlife resources in the FRA.
WILDERNESS			
The current management situation of the SMAs results in positive, short- and long-term benefits to the Wilderness Areas. Adjacent leasing and development of surface coal is projected to have potential negative, short- and long-term impacts to wilderness characteristics.	Resolution of the lands and SMA issues would result in positive short- and long-term effects on wilderness resources. The coal issue may result in negative, short- and long-term effects if tracts are leased adjacent or close to wilderness lands.	The effects of the lands issue could be negative, short- and long-term. The coal issue could cause negative, short- and probably long-term impacts if leases are issued adjacent or close to wilderness resources.	There are positive, short- and long-term effects for wilderness resources under the lands issue. The coal issue could pose adverse effects to wilderness resources depending on which tracts are eventually leased and developed.
CULTURAL RESOURCES			
Under this alternative, impacts to cultural resources are mixed. Positive effects will result from Chacoan Outlier management. Cultural resources could also be positively affected by acquisition of significant sites on Mid-	This alternative would have a long-term, positive effect on cultural resources. Protection and management of significant cultural resource sites would be more balanced with a variety of prehistoric and historic occupa-	Under this alternative, impacts to cultural resources are mixed. Positive effects will result from Chaco Outlier management. Cultural resources could also be positively affected by acquisition of significant sites through	Effects on cultural resources would be long-term and positive. Protection and management of significant cultural resource sites would be more balanced with prehistoric and historic occupations represented in the management

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
dle Mesa. On the other hand, negative impacts are occurring as a result of unlimited and uncontrolled access associated with development and off-the-road vehicular travel.	tions represented in the special management spectrum. The designations to close or limit off-the-road vehicle use results in beneficial effects to specific areas with high cultural resource values. Potential adverse impacts could occur on a site-specific basis in "open" areas if off-the-road vehicular travel results in damage to sites.	land exchanges. Moderate to severe impacts to cultural resource sites could increase with development and ORV use.	spectrum. Not carrying forward the La Plata Valley SMA could result in negative impacts to resources; however, two Chaco outliers and the East Side Rincon Site, located in this valley, would be protected through SMA designation. Exchange or sale of the Canada Larga area will transfer an area of high site density out of BLM administration and control. Limiting or closing SMAs to ORV use results in beneficial effects to specific areas with high cultural resource values. Potential adverse impacts could occur on a site-specific basis in "open" areas if off-the-road vehicular travel results in damage to sites or structures.
PALEONTOLOGY			
Of the issues identified, SMAs which enhance paleontological research have the greatest positive impact on paleo resources.	Of the issues identified, SMAs which protect important paleontological type localities would result in the greatest positive impact on paleo resources. None of the other issues would have a significant effect.	The lands issue has the potential for a negative impact to paleo resources. Of the other issues identified, the lack of SMAs which protect paleo values would be a negative impact.	Of the issues identified, SMAs which protect important paleontological type localities would result in the greatest positive impact to paleo resources.
OUTDOOR RECREATION			
Selection of Alternative A would	Selection of Alternative B would	Selection of Alternative C would	Selection of Alternative D would

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE (Continued)

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
have adverse impacts on outdoor recreation resources. Short- and long-term negative impacts are readily observable on non-motorized types of recreation and opportunities relying on a predominantly natural environment.	result in overall positive effects on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Acquisition of the lands around the Wilderness Areas, the WSA and the Fossil Forest would improve overall recreation opportunities.	carry forth overall adverse impacts on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Short- and long-term positive effects would result in the identification of two SMAs and a trail system managed for vehicular use.	result in overall positive effects on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Short- and long-term benefits would result by designating two off-the-road motorized vehicle areas and a trail system as well as designating other SMAs.
SOCIAL AND ECONOMIC CONDITIONS			
As a consequence of land ownership adjustments, short-term economic impacts will result from reduced tax revenues but not at significant levels. Other issues are not expected to have significant social or economic short-term or long-term impacts.	Although almost every issue would generate some social and economic consequences under this alternative, none of the economic consequences would be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability and vegetative uses issues have the potential of arousing social concerns among the Navajo people. The consequences of vegetative use adjustments could result in rather severe short-term social concerns that would become less severe with time but may last for years.	Although nearly every issue would have some social and economic consequences, none of the economic consequences would be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability and perhaps SMA issues have the potential for arousing social concerns among the Navajo people.	Although nearly every issue would have some social and economic consequences, none of the economic consequences are believed to be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability, vegetative uses, and perhaps SMA issues have the potential of arousing social concerns among the Navajo people.

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Introduction

INTRODUCTION

PURPOSE AND NEED

The Farmington Resource Management Plan (RMP) has been prepared to provide a comprehensive framework for managing the public lands and for allocating resources during the next 10 to 20 years using the principles of multiple use and sustained yield. These two principles are defined in the glossary. The RMP establishes areas for limited, restricted, or exclusive uses, levels of production, allowable resource uses, resource condition objectives, program constraints, and general management direction.

This document includes both a proposed RMP (with four different management alternatives) and a draft Environmental Impact Statement (EIS), which fulfill the Federal Land Policy and Management Act (FLPMA) and the National Environmental Policy Act (NEPA) requirements for comprehensive land use planning for public lands. Section 3(3A) of the Federal Coal Leasing Amendments Act of 1976 also requires comprehensive land-use planning prior to coal leasing. In addition, court-ordered and statutory requirements will be met upon final approval of two of the decisions proposed in this document. The first of these is the statutory requirement that public lands be designated as "open," "limited," or "closed" to off-road vehicle (ORV) use. This RMP/EIS also analyzes alternatives for livestock grazing on public lands as required by the court-ordered settlement of a 1973 lawsuit filed against the Bureau of Land Management (BLM) by the Natural Resources Defense Council. Plan amendments, if necessary, will keep the RMP current with resource management needs and policies.

Between 1979 and 1981, the Farmington Resource Area prepared land use plans, known as Management Framework Plans (MFPs), for all public surface and minerals within its area of jurisdiction (see Appendix A). These MFPs will continue to be implemented to the extent they are not in conflict with the direction proposed in this RMP.

LOCATION

The planning area, located in northwestern New Mexico, encompasses approximately 5,000,000 acres of mixed land ownership and includes all of San Juan County, most of McKinley County, western Rio Arriba County, and northwestern Sandoval County. Included within this area are approximately 1,508,450 acres of public surface estate and approximately 3,000,000 acres of subsurface minerals. The management objectives and philosophies developed in this plan would be applied only to the public surface and/or mineral estate. Map i-1 illustrates the planning area and shows its location within New Mexico. The population of the area is centered around the Farmington-Aztec-Bloomfield-Shiprock area to the north, and the Gallup-Crownpoint area to the south.

The distribution of the public lands has an important influence on land management options. The public lands are fairly well consolidated in northeastern San Juan County, while scattered or "checkerboard" ownership patterns predominate over much of the remaining planning area. The planning area includes some public land in Sandoval County that is part of the Rio Puerco Resource Area (RPRA). An agreement between the FRA and the RPRA has assigned administrative responsibility for these lands to the FRA. For this reason, this area is included in the Farmington RMP/EIS planning area.

THE PLANNING PROCESS

The BLM resource management planning process consists of nine basic steps. This process requires the use of an interdisciplinary team of resource specialists for the completion of each step. The steps described in the planning regulations and followed in preparing this RMP are summarized below and graphically displayed in Figure i-1. Publication of this document is part of Step 7, selection of the preferred alternative.

Step 1. Identification of Issues

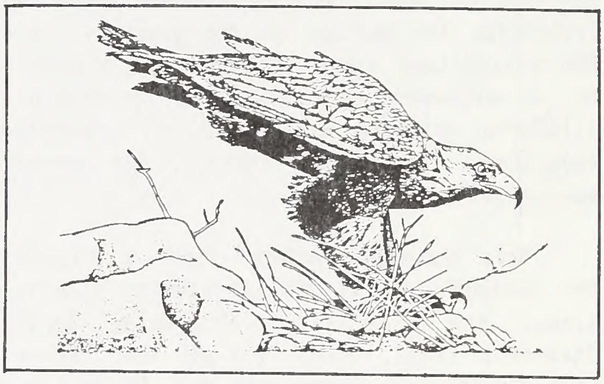
The first step in the planning process is intended to identify resource management problems or conflicts that can be resolved through the planning process. These problems or conflicts (issues) were identified by the BLM and other agency personnel as well as members of the public. Seven issues were identified and are considered in this document and are discussed in detail.

Step 2. Development of Planning Criteria

During this step preliminary decisions are made regarding the kinds of information needed to clarify the issues, the kinds of alternatives to be developed, and the factors to be considered in evaluating alternatives and selecting a preferred Resource Management Plan. As each issue was identified, a list of planning criteria was developed to help guide the resolution of that issue. The planning criteria are listed after each issue beginning on page i-5.

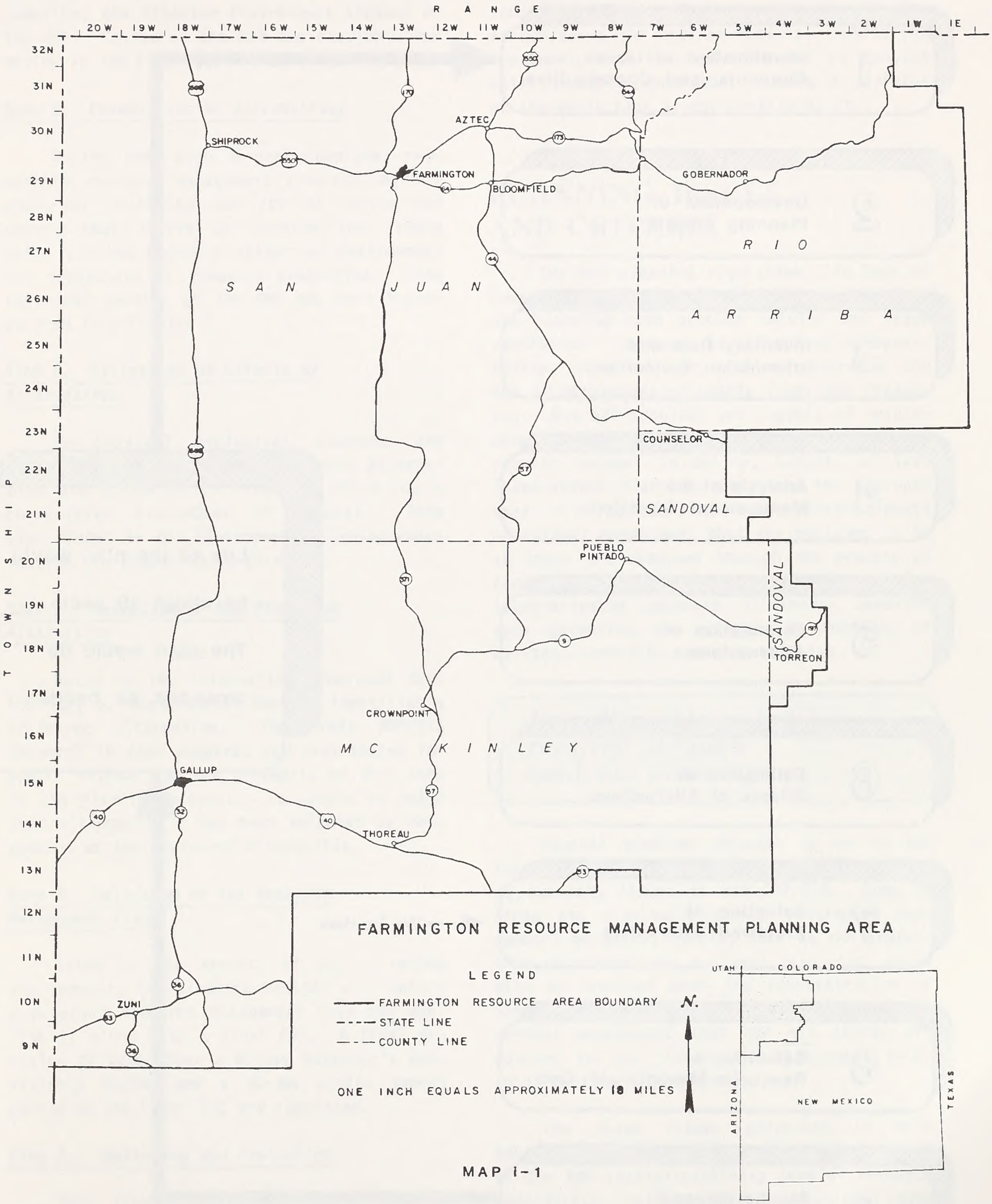
Step 3. Inventory Data and Information Collection

This step involves the collection of various kinds of environmental, social, economic, resource and institutional data needed for completion of the process. This step can include detailed field studies, literature studies or consultation with appropriate professionals. In most cases, this process is limited to inventories needed to address the issues.



Step 4. Analysis of the Management Situation (MSA)

This step calls for deliberate assessment of the current situation. It includes a description of current BLM management guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of existing data needed to analyze and resolve the identified issues. The end result of this step is the development of an unpublished companion document known as the Management Situation Analysis (MSA). Chapter 1 of that document is used to develop the



FARMINGTON RESOURCE MANAGEMENT PLANNING AREA

MAP I-1

STEPS IN THE RESOURCE MANAGEMENT PLANNING PROCESS

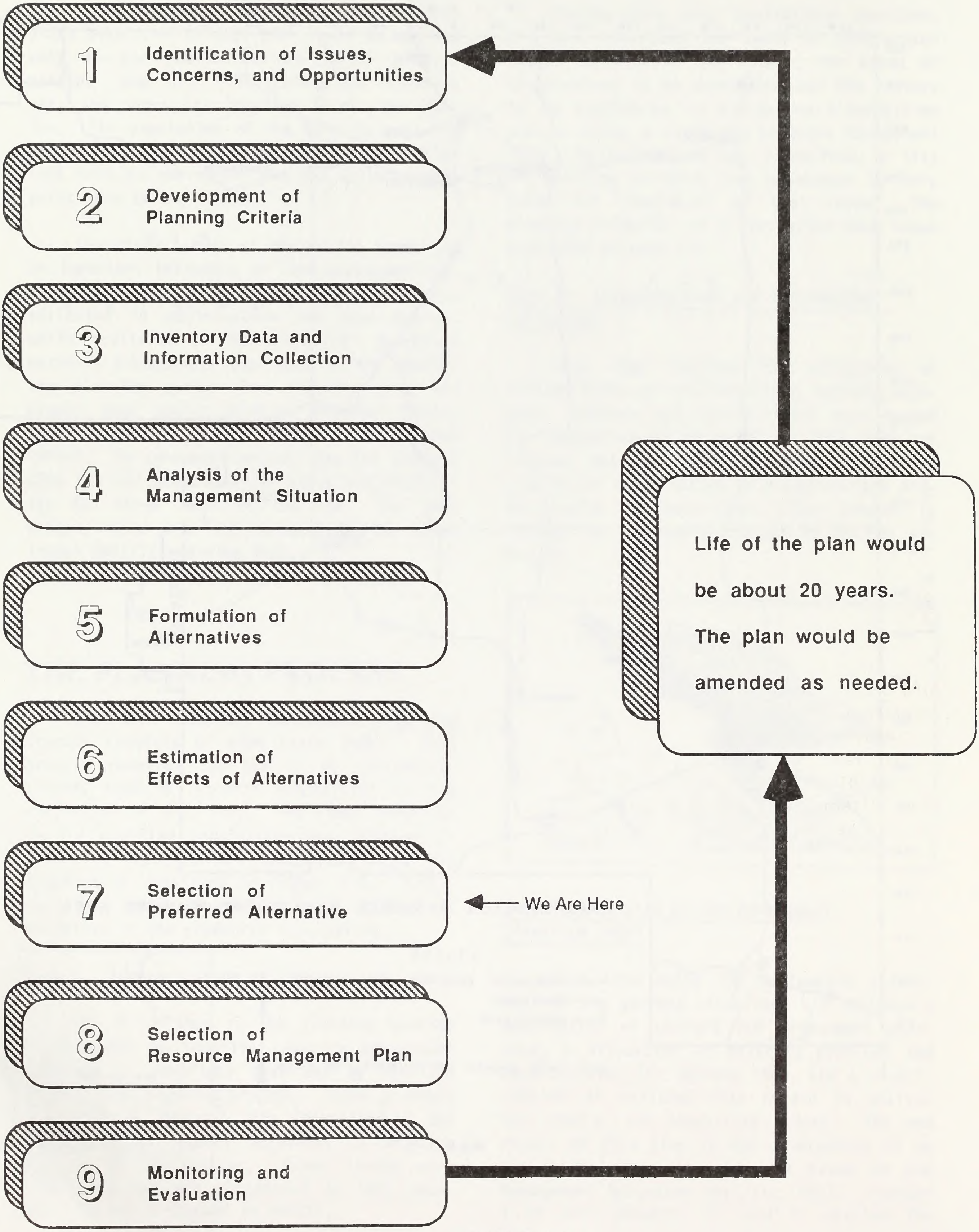

1 Identification of Issues, Concerns, and Opportunities
2 Development of Planning Criteria
3 Inventory Data and Information Collection
4 Analysis of the Management Situation
5 Formulation of Alternatives
6 Estimation of Effects of Alternatives
7 Selection of Preferred Alternative
We Are Here
8 Selection of Resource Management Plan
9 Monitoring and Evaluation
Life of the plan would be about 20 years. The plan would be amended as needed.

FIGURE I-1

Continuing Management Guidance section of the RMP. MSA Chapter 2 is used as a basis for compiling the Affected Environment chapter of the RMP. Copies of the MSA are available for review in the Farmington Resource Area office.

Step 5. Formulation of Alternatives

During this step several complete, reasonable resource management alternatives are prepared, including one for no action and others that strive to resolve the issues while placing emphasis either on environmental protection or resource production. This important section of the RMP has been incorporated into Chapter 1.

Step 6. Estimation of Effects of Alternatives

The physical, biological, economic, and social effects of implementing each alternative are estimated in order to allow for a comparative evaluation of impacts. This step, known as the Environmental Consequences section, is Chapter 3 in this RMP.

Step 7. Selection of the Preferred Alternative

Based on the information generated during Step 6, the District Manager identifies a preferred alternative. The Draft RMP/EIS document is then prepared and distributed for public review. We are presently at this step in the planning process. It should be noted that Alternative D has been selected by management as the preferred alternative.

Step 8. Selection of the Resource Management Plan

Based on the results of public review and comment, the District Manager will select a proposed Resource Management Plan and publish it along with a final EIS. A final decision is made after a 60-day Governor's Consistency Review and a 30-day public appeal period on the Final EIS are completed.

Step 9. Monitoring and Evaluation

This step involves the collection and analysis of long-term resource condition and trend data to determine the effectiveness of the plan in resolving the identified issues, and to ensure that implementation of the plan is achieving the desired results. Monitoring continues from the time the RMP is adopted until changing conditions require a revision of the whole plan or any portion of it.

PLANNING ISSUES AND CRITERIA

The BLM planning regulations (43 Code of Federal Regulations [CFR] 1600) equate land use planning with problem solving and issue resolution. An issue is defined as an opportunity, conflict, or problem regarding the use or management of public lands and resources. Not all problems are capable of resolution through land use planning - some may require changes in policy, budget, or law. Issue-driven planning, which is the approach used in RMPs, means that only those aspects of current management that are believed to be at issue are examined through the process of formulating and evaluating alternatives. The issue-oriented approach eliminates needless data gathering and analysis by focusing on existing conflicts and controversies.

> *Not all problems can be resolved through land use planning.*

Several problems brought up during the issue identification process are not included as separate issues in the RMP/EIS. Some of these are resolvable within continuing management guidance; others, such as the protection of significant cultural resources, would also be resolved with the identification of Special Management Areas. Those aspects of current management that are not issues are covered in the "Continuing Management Guidance" section of Chapter 1.

The seven issues addressed in this RMP/EIS were identified based on the judgment of the RMP interdisciplinary team of resource specialists, interagency consultation, state government input, review by BLM managers, and through extensive discussions and public meetings with individuals, industry representatives, and special interest groups.

Planning criteria are the standards, rules, and measures used for data collection and alternative formulation, and will guide final plan selection. Planning criteria are taken from appropriate laws and regulations, guidance found in BLM Manuals and directives, and concerns expressed in meetings and consultations, both with the public and with other agencies.

The following seven planning issues and their associated planning criteria were identified for resolution in the RMP.

Issue #1: Land Ownership Adjustments

Small, scattered, and isolated tracts are often expensive or difficult to manage, and normally contribute little to the public land resource. Some of these parcels, which are close to urban areas, are also in demand for community expansion. Exchange or disposal of these tracts often improves management efficiency by focusing efforts on larger tracts where the BLM has more opportunities to meet its goals and objectives. Significant amounts of public lands in the southern half of the Resource Area are in small, isolated tracts. The RMP will consider where and what types of land ownership adjustments could achieve more efficient management of the public land resources.

The basic concept of land ownership adjustments is to consolidate administrative boundaries to create a more efficient and economical land ownership pattern. Areas for retention and exchange are identified under each of the four alternatives in Chapter 1. In the retention area, sale of public land would be limited to the acreages listed in Appendix D. Where parcels are to be sold, the following criteria established in Section 203 of FLPMA must be met:

(1) such tract because of its location or other characteristics is difficult and uneconomical to manage as part of the public lands, and is not suitable for management by another federal department or agency; or

(2) such tract was acquired for a specific purpose and the tract is no longer required for that or any other federal purpose; or

(3) disposal of such tract will serve important public objectives, including but not limited to, expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values, including, but not limited to, recreation and scenic values, which would be served by maintaining such tract in federal ownership.

Similarly, if a parcel is to be disposed of through exchange, it must be shown that the action would serve the public interest. For example, the action would result in better federal land management, satisfy important state or local needs, or would help accomplish management objectives defined in this plan (e.g. inholding acquisition, trespass abatement, access needs, resource improvement, etc.). Without such determinations, it may be necessary to amend this plan before allowing disposal. Unlimited exchange opportunities may be entertained to consolidate federal and non-federal lands within the retention areas. However, federal acreage within the retention zone should not decrease significantly, and in fact should increase. To reduce the impacts of split estate where practical, the BLM may pursue mineral exchanges as authorized by FLPMA Sec. 209. Nothing in this RMP is intended to prohibit mineral exchanges conducted under the BLM mineral exchange policy.

In the exchange zones, lands may be transferred out of federal ownership by any of a wide variety of exchange or disposal authorities as long as all applicable sale or exchange criteria are met and there are no major conflicts with other resource management programs. Lands in the Farmington Resource Area exchange zones can be utilized by other BLM resource areas within the state of New Mexico to provide a pool of lands for exchange purposes. There will be no title transfers of public lands within any Special Management Area (SMA) unless this is a management prescription of the SMA. In general, attempts would be made to acquire non-federal inholdings in SMAs if it is important to the management of the SMA. Any title transfer of public lands will require the BLM to prepare a mineral report, even if the transfer is only for the surface estate.

Traditional BLM policies on land retention, exchange, and disposal do not work well in the southern portion of the Farmington Resource Area.

The difficulty of managing much of the public land in the southern portion of the Resource Area is demonstrated by the extensive unauthorized occupancy and use of public lands in these areas. Past land exchange efforts, public land orders, executive orders, the Navajo Exchange, and the Navajo Land Selection based on the Navajo/Hopi Relocation Settlement Act illustrate this. Traditional BLM policies on land retention, exchange, and disposal do not work well in the southern portion of the Resource Area. To help alleviate this problem, the subject lands will have to be evaluated to determine which lands should be transferred out of BLM administration.

The criteria will be developed in the plan to provide for the following:

-- Retention Zones:
Ownership will remain with the BLM over the long term. Exchanges for consolidating ownership will be considered and may include conveying retention lands to accomplish a desirable exchange. Recreation and Public Purposes (R&PP) applications will be considered. Sale proposals may only be considered for specifically identified parcels

-- Exchange Zones:
These lands will pass out of federal ownership over the long term. Priority for disposal would be given to exchanges; however, other forms of land transfers, such as those listed in the Chapter 1 "Continuing Management Guidance" section would also be considered.

-- Acquisition Zones: Inholdings (non-BLM) will be designated for acquisition if important to proper management of the area.
Ownership of public land will be maintained by the BLM over the long term. No disposal proposals will usually be considered.

To resolve this issue, answers are needed to the following questions:

On which lands should ownership be adjusted (exchanged, disposed, and/or acquired) to facilitate more efficient management?

The planning criteria for this issue are:

-- Public lands will not be exchanged or disposed of if they provide access to large blocks of other public lands, unless access rights for the public lands can be reserved in the patent.

-- Public lands identified for sale or disposal must be tracts which are difficult or uneconomical for the BLM to manage or lands which would best serve important public objectives if transferred out of BLM administration.

-- Priority will be given to exchanging identified public lands for non-federal lands that have been identified for acquisition to enhance BLM programs.

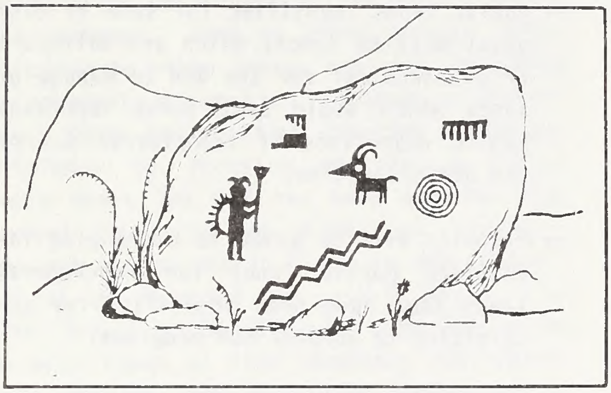
-- All lands identified for sale or exchange will be disposed of at or above fair market value (excluding those lands transferred under the Recreation and Public Purposes Act - R&PP).

-- Public lands in the retention zone will be considered for exchange. The intent of exchanges in this area will be to consolidate federal lands.

-- Public lands in the retention area will be considered for R&PP actions on a case-by-case basis. These actions will not require an RMP amendment.

-- Public lands will not be exchanged or otherwise disposed of if resources of national, state or regional significance are found on them and the adverse effects of the action cannot be mitigated at reasonable cost.

- -- Public lands will not be exchanged or otherwise disposed of if the action is contrary to state, county or local land use plans or zoning ordinances.
- -- Existing authorized structures or improvements will be identified as valid existing rights. All transfers of public lands will be subject to valid existing rights.
- -- Holders of valid permits or cooperative agreements covered by Section 4 of the Taylor Grazing Act will be reimbursed by the purchaser for financial investments they have made in rangeland improvement projects on public lands if the BLM sells the lands.



Issue #2: Home Use Fuel Sources

Based on public comments, this issue has been expanded from fuelwood to include domestic use of coal.

Over the past 10 years there has been a significant increase in demand for fuelwood and coal for use in home heating and cooking. This is due to the increased use of home fireplaces and stoves in urban areas as well as continued heavy subsistence use in remote areas of the Resource Area.

Areas which should be closed to fuelwood cutting must be identified and an education and enforcement program developed.

Three licenses for domestic use coal mining exist in the Resource Area. The potential for issuance of additional licenses exists. In the past, there have been problems obtaining proper legal compliance in the rehabilitation of domestic use coal license areas.

To resolve this issue, answers are needed to the following questions:

Which public lands should be designated for sale of fuel resources and what seasonal limitations should be placed on collection?

Where are public lands where fuelwood cutting can be used as a tool to reduce resource conflicts and/or enhance resource management?

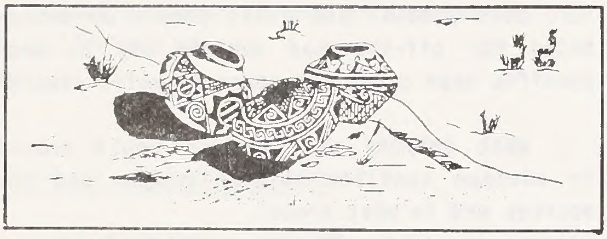
Should federal coal outcrops on public lands be made available under license for home heating and cooking?

The planning criteria for this issue are:

- -- Fuelwood products will be made available to the public on a sustained yield basis.
- -- Fuel sales will be designed to minimize trespass on non-public lands and, where possible, will be located near population centers.
- -- Fuelwood will be salvaged, where practical, from right-of-way clearings, well pad construction areas, tree-thinning areas, chained and chemically treated areas, and coal lease areas (prior to actual mining).
- -- Fuel sources will not be made available in areas where harvesting would cause excessive disturbance to wildlife habitat or scenic, paleontological, cultural, historic, recreational, or wilderness values of the area.
- -- Licenses for domestic use of coal will be issued only after proper rehabilitation of the site is agreed on, whether done by the licensee or the BLM.
- -- Fuelwood collection areas may be period-

ically closed to protect other resource values.

-- If there are valid existing rights to coal, a license for domestic use will be issued only if the right-holder grants permission.



Issue #3: Special Management Areas

The Resource Area contains certain areas where special management could protect important natural, cultural, recreational, paleontological, scenic, botanical, wildlife, watershed, and wilderness values (see Appendix B for a description of each area). Special management could be achieved through identification of a variety of designations. Past planning decisions concerning special management designations will be carried forward unless additional information requires further analysis.

To resolve this issue, answers are needed to the following questions:

What areas and resource values should be identified for special management attention?

How should such areas and resource values be managed?

The planning criterion for this issue is:

-- Designate those areas that have unique or historic, cultural, paleontological, vegetative, riparian, fish and wildlife habitat, mineral, recreational, natural hazard, or scenic values that represent natural systems or processes. These areas could have greater than local significance or special local worth, consequence, meaning, distinctiveness, or cause for concern. Special designation can include Areas of Critical Environmental Concern (ACEC), Research Natural Areas (RNA), Outstanding Natural Areas, Recreation Management Areas, or other designations.

Issue #4: Coal Leasing Suitability Assessment

Portions of the Resource Area are potentially valuable for the development of coal. The demand to develop this resource fluctuates almost annually due to changing demands for electric power, trends in alternate fuel costs, and availability. Over 75,000 acres of BLM-administered subsurface are under Preference Right Lease Applications (PRLAs). In addition, 663,941 acres have been considered for competitive leasing. The four coal screens (coal development potential, unsuitability criteria, multiple use, and surface owner consultation), which serve to limit the areas under consideration, were applied to the areas being considered for competitive leasing during preparation of a coal leasing EIS in the early 1980s (San Juan River Regional Coal EIS, USDI, BLM 1984a). The screens have been re-applied during this planning effort with particular emphasis on recent coal data acquisition and new, specific multiple use screens. It has been estimated that coal available in the PRLAs and previously identified competitive leasing tracts would more than satisfy demands over the next 50 to 100 years.

To resolve this issue, answers are needed to the following questions:

After reapplication of the four land use planning screens for coal, which tracts already identified under round one of the coal program should be carried forward for further consideration for coal leasing?

Are there any new areas which should be considered acceptable for further consideration for coal leasing?

The planning criteria for this issue are:

-- Lands with coal development potential within the lifetime of the RMP will be identified and the other coal screens will be applied to these areas.

-- Qualified surface owner information will be used to analyze views on leasing federal coal located under private surface.

-- The 20 unsuitability criteria specified by federal regulations will be applied to lands identified as having coal development potential to ensure environmental compatibility.

-- Multiple land use decisions may be made which will eliminate additional coal deposits from further consideration for leasing to protect other resource values of a locally important or unique nature not included in the unsuitability criteria.

> *The four coal screens have been re-applied during this planning effort.*

Issue #5: Transportation

This issue includes off-road vehicle designations and public access needs. It is BLM policy to designate all public lands in its jurisdiction as "open," "limited," or "closed" to motor vehicle use. The BLM will also address public access needs to these lands.

Motorized vehicles will be discussed in terms of design and capabilities of off-road vehicles (ORV) and off-highway vehicles (OHV). ORVs are vehicles designed for and capable of travel over natural terrain and water. OHVs are for the most part designed for travel on unpaved roads or trails and not particularly for off-road use.

Public lands currently or historically used for organized ORV events will be designated "open" or "limited" for intensive ORV use if there are no significant resource protection needs, user conflicts, or public safety concerns.

To resolve this issue, answers are needed to the following questions:

What public lands should be designated as "open," "limited," or "closed" to off-the-road vehicle use?

What transportation routes should be constructed, maintained, restricted from public use, or closed and rehabilitated?

What special use areas should be designated for off-the-road vehicle use to meet specific user group and general public demand?

What OHV/ORV designations would result in minimum conflict between people and resources and in what areas?

The planning criteria for this issue are:

-- Set priorities and provide legal public access to those areas of public lands with significant resource values or for which there is a high demand but insufficient legal access.

-- Identify existing and proposed roads needed for management of public lands.

-- Close and rehabilitate unneeded roads for resource protection & public safety.

-- Identify those areas which are sensitive to or not suitable for the construction of new roads.

-- Designate all public lands "open" to off-the-road vehicular use where compatible with existing resources.

-- Designation of public lands as suitable for "limited" or "closed" off-the-road vehicular use will allow for the protection of the public lands, promote the safety of all users of the public lands, and minimize the conflicts between users and resources.

-- Designation for off-the-road vehicular use will consider protection of resources such as wildlife habitat, cultural resources, wilderness values, watershed, threatened or endangered species, paleontological resources, other resource uses, and specially designated areas or sensitive areas.

-- Public lands currently or historically used for organized or general OHV/ORV activity events may be designated as "open" or "limited" to specific types of use when there are no special restrictions or compelling resource protection needs, user or landowner conflicts, or public safety issues to warrant further limiting use.

Issue #6: Vegetative Uses

Approximately 468,000 acres of public lands in the Resource Area not considered in prior grazing EIS's have been inventoried for ecological condition. As a result of the analysis of the inventory data, these public acres have been placed in one of three selective management categories. The principal consideration for this issue is to determine changes in livestock grazing use, if any, needed to reduce conflicts between livestock grazing and other uses of the public lands.

This issue applies to all the public lands in the Resource Area not addressed by the San Juan Grazing Management Environmental Impact Statement (USDI, BLM 1980).

Management changes appear to be needed in some livestock grazing allotments in order to reduce conflicts between livestock grazing and other important resource values and uses.

The BLM is obligated to satisfy the National Environmental Policy Act (NEPA) requirements in the selection of rangeland management practices. The Farmington Resource Area has satisfied this obligation for the northern portion of the Resource Area under the San Juan Grazing Management EIS. Compliance with NEPA has yet to be achieved for the southern portion of the Resource Area. A range of grazing management alternatives, from no grazing to maximizing livestock production and their respective environmental impacts, are considered in this RMP. In addition, the Memorandum of Understanding that the BLM has with the Navajo Tribe and the Bureau of Indian Affairs (BIA) will be evaluated to determine environmental acceptability of this administrative arrangement.

To resolve this issue, answers are needed to the following question:

What are the correct levels of vegetative use for livestock, wildlife, and watershed production outside of the area covered by the San Juan Grazing Management EIS?

The planning criteria for this issue are:

-- A range inventory has been conducted for the purpose of designating ecological condition for each range site, determining the selective management category, and identifying existing range improvements. The grazing allotment selective management categories may be changed based on additional resource data and are described as follows:

(1) Maintain (M) category: The range inventory indicates that these public lands are in satisfactory ecological condition and no significant resource conflicts have been identified. The BLM will manage these lands in a manner that will maintain the existing resource condition.

(2) Improve (I) category: The range inventory indicates that these public lands are in unsatisfactory ecological condition and/or significant resource conflicts have been identified. The BLM will manage these public lands to improve the ecological condition and/or reduce resource conflicts. These objectives will be accomplished through the intensification of range management and/or reductions in allowable livestock grazing use.

(3) Custodial (C) category: The range inventory indicates that these public lands have a low potential for improvement in ecological condition. The BLM will manage these lands to protect existing resource values.

-- Upon completion of the monitoring program, the vegetation will be managed to:

(1) Ensure that the proper use level of the key forage species is not exceeded.

(2) Improve or maintain ecological condition and vegetative productivity.

(3) Provide for the protection of crucial wildlife habitat and critical watersheds.

Issue #7: Right-of-Way Corridors and Windows

The San Juan Basin oil and gas field, as well as three coal-fired electrical generating stations, are located within the boundaries of the Resource Area. Consequently, there is a need to ensure that the development of linear rights-of-way minimizes adverse impacts on other public resources.

In general, right-of-way windows would be designated as the preferred locations for future transmission line and pipeline placement. Exclusion areas where right-of-way placement may be discouraged will also be identified.

To resolve this issue, answers are needed to the following questions:

Which public lands in the Resource Area should be designated as utility corridors or windows?

Where should rights-of-way be restricted or prohibited?

What land-use restrictions should be placed on the public lands within the identified corridors or windows?

The planning criteria for this issue are:

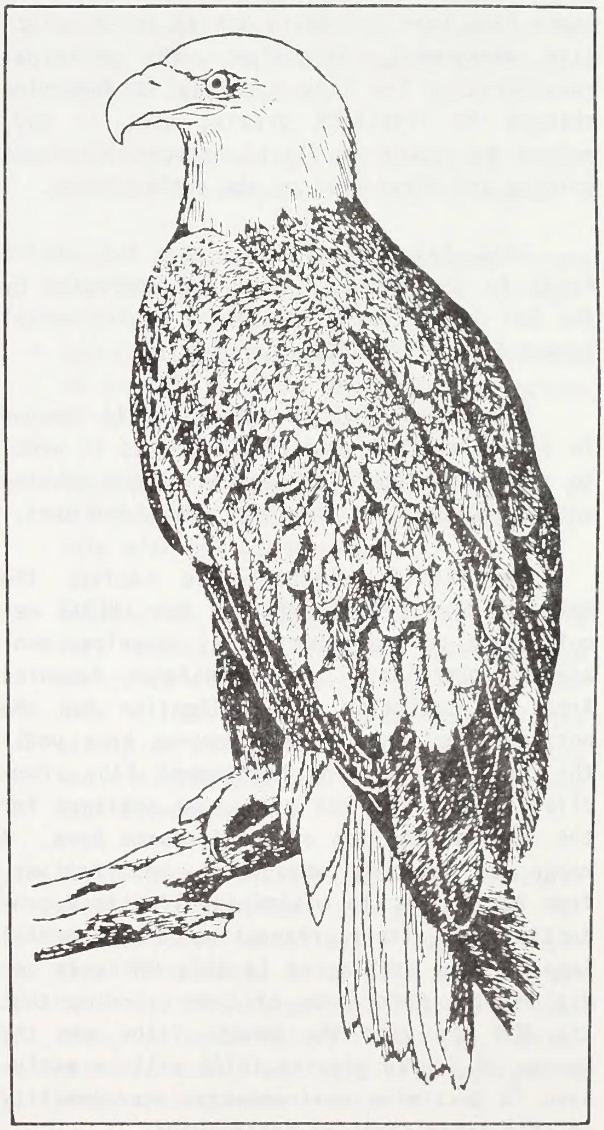
-- Public lands on which there are now multiple rights-of-way will be considered for corridor or window designation.

-- Potential right-of-way corridors or windows on public lands which have minimal conflicts with critical resource values (e.g. erosion areas, minerals, valuable wildlife habitat, riparian areas, and scenic areas) will be favored.

-- Identification of right-of-way corridors or windows will seek to optimize economic efficiency of right-of-way management as balanced by environmental and social concerns.

-- Technical, public safety, and national security concerns will be considered in designating corridors or windows as well as exclusion areas.

-- Special management areas and areas of unique or unusual resource values will be considered for restriction or prohibition of right-of-way development.



Plan Alternatives

Chapter 1

CHAPTER 1

PLAN ALTERNATIVES

INTRODUCTION

This chapter is divided into two sections: "Continuing Management Guidance" and resource management "Plan Alternatives." The first section is a summary of basic management policy that is applicable regardless of which alternative is selected. The second section is a presentation of four alternatives developed as possible solutions to the issues. Each alternative presents a different blend and balance of resource allocations and emphasis. All alternatives comply with the Federal Land Policy and Management Act (FLPMA) requirement that the public lands be managed by the principles of multiple use and sustained yield. When coupled with the continuing management guidance, any of the alternatives could be implemented as the selected Resource Management Plan (RMP).

Existing Management Framework Plan (MFP) decisions are available for the entire Resource Area (see Appendix A). This RMP will provide multiple-use planning for the Area while consolidating and updating the existing management decisions contained in those MFPs. Those public land resources and programs not addressed specifically in the alternatives would be managed as outlined in the following section on "Continuing Management Guidance."

The RMP alternatives are designed to provide a management foundation for the public lands. Where necessary, specific actions will be detailed in activity plans with accompanying Environmental Assessments (EA). Activity plans describe how a particular area or resource will be managed, and will comply with the allowable resource uses, levels of production, resource condition goals, program constraints, and general management practices documented in the RMP.

As the BLM moves forward in the land-use planning process, it is important to note the U.S. Forest Service (USFS) is also completing similar land-use plans. Many readers may be aware there is a proposal before Congress known as the BLM/FS Interchange which could result in realignment of land management jurisdictions between these two agencies. The intent of this legislation is to enhance public service, improve administrative efficiency, and reduce costs in areas which have intermingled land jurisdiction. It should be noted that if the Bureau of Land Management and U.S. Forest Service Land Interchange does occur, the present proposal would transfer 11 percent of the Carson National Forest, known as the Jicarilla Ranger District, to BLM administration. In terms of land-use planning, the BLM would simply adopt the applicable portions of the Carson National Forest land-use plan rather than revise this RMP.

CONTINUING MANAGEMENT GUIDANCE

This section describes the resource management direction that will continue to guide multiple-use decisions regardless of which RMP alternative is ultimately selected. This direction is fundamental and its associated guidance is based on laws, regulations, manuals, policy, executive orders, memoranda, and applicable planning documents. The San Juan (USDI, BLM 1979a) and Chaco (USDI, BLM 1981b) MFPs provide specific guidance on land-use planning for the Resource Area. Based on new resource information and updated Bureau guidance, analysis of MFP multiple-use decisions is provided in Appendix A. When approved, the Farmington RMP will constitute the final land-use plan that will supersede all previous land-use planning. As summarized below, the continuing management guidance is based on detailed information contained in an unpublished companion document called the Management Situation Analysis (MSA). This document is available for public review at the Farmington Resource Area (FRA) Headquarters.

MINERALS

It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner which minimizes environmental damage and provides for the rehabilitation of affected lands. The Bisti and De-na-zin Wilderness Areas and the Fossil Forest Research Natural Area are withdrawn from all mineral entry or mineral sales.

BLM tries to ensure mineral development minimizes environmental damage.

OIL AND GAS

The FRA has responsibility for a considerable amount of oil and gas activity in the San Juan Basin. The Resource Area's responsibilities consist of permitting and inspection and enforcement programs for the entire Albuquerque District plus portions of southeast Utah and northeast Arizona. A gradual shift of responsibility from the Resource Area to the other resource areas and states is expected, but for the foreseeable future the FRA will continue to exercise these responsibilities. As a general rule, all public lands not managed under the BLM Wilderness Management Policy (USDI, BLM 1981a) and Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979) are available for oil and gas exploration, leasing, and development. In certain areas, oil and gas leases are issued with only standard stipulations attached. In other areas, leases may have special stipulations attached at the time of issuance to protect sensitive resource values. In highly sensitive areas, where special stipulations are not sufficient to protect important resource values, "no surface occupancy" stipulations are attached to leases. Site-specific decisions regarding lease issuance and the attachment of appropriate stipulations will continue to be based on the leasing guidelines contained in the Northern New Mexico Oil and Gas Environmental Analysis Record (USDI, BLM 1974).

COAL

The FRA contains existing surface mines, coal leases, Preference Right Lease Applications (PRLAs), and competitive coal lease tracts. The San Juan River Regional Coal EIS (USDI, BLM 1984a) provides a detailed analysis of coal resources and potential impacts of coal leasing. Due to the large amount of information presented in that document there has been no attempt to repeat the information in this RMP. The laws and regulations for development of coal are summarized in that EIS. All existing guidance will be followed in the preparation of each alternative.

MATERIAL SALES

Federal lands are the major source of mineral materials (primarily sand and gravel) for industrial projects in the Four Corners area. The Resource Area is responsible for the sale, permitting, and inspection and enforcement programs for mineral material activity. Regulations directing this program are found in 43 CFR 3600.

LOCATABLE MINERALS

The primary locatable mineral in the Resource Area is uranium. A few claims have been staked in the northern part of the Resource Area for gold, sand, and gravel (pre-1955 claims) but these claims have little, if any, impact on the program. The majority of the locatable mineral activity is in McKinley County.

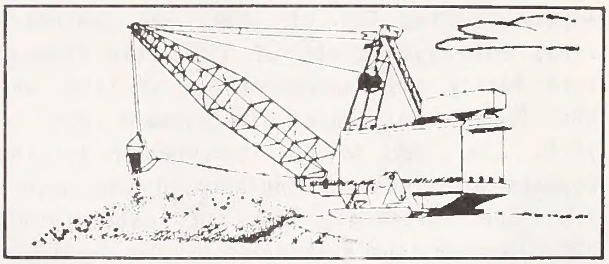
The Resource Area's responsibility in this program consists of completing validity examinations for patent or Bureau actions, and review and inspection of notices and plans filed under the 43 CFR 3809 regulations.

A few claims have been staked in the northern part of the Resource Area for gold.

Although the Resource Area does not have reclamation responsibility, it does have a responsibility to the District to report when reclamation will be needed and when environmental problems are encountered with locatable minerals.

INDIAN LANDS RESPONSIBILITIES

The BLM works in cooperation (via Memoranda of Understanding) with the Bureau of Indian Affairs (BIA) and the Indian tribes on Indian-allotted lands and reservation lands. The BLM has primary responsibility for inspection of mineral leases and enforcement of mineral lease terms and conditions on Indian lands. The Farmington Resource Area is responsible for inspection and enforcement on all minerals on Indian lands except uranium leases, which remain the responsibility of the Rio Puerco Resource Area (on Indian lands all minerals are leasable). Surface protection for the oil and gas program is accomplished with BIA and/or tribal concurrence.



AREAS OF SPECIAL CONSIDERATION

There are presently parts of 27 oil and gas leases on the Bisti and De-na-zin Wilderness Areas in the FRA. Strict surface protection stipulations are expected to prevent adverse impacts on the wilderness if drilling or production operations occur.

All mining claims that were located on the wilderness areas have been relinquished by the claimants and no active contracts for saleable minerals exist in either area. Since these areas are now closed to mineral entry, there will be no impact by the locatable or saleable programs.

Parts of four coal PRLAs lie within the wilderness areas. If a right to coal is determined after processing these applications, the Bureau may move to exchange the mineral estate for similar interest outside the wilderness areas.

There are parts of seven oil and gas leases and parts of three PRLAs within the Ah-shi-sle-pah Wilderness Study Area. BLM budget appropriations since 1983 have prohibited expenditure of funds on processing of mineral actions in WSAs.

The Fossil Forest Research Natural Area (RNA) contains parts of four PRLAs and parts of four oil and gas leases within its boundaries. The RNA has been temporarily withdrawn from mineral entry. Mineral management in the future will depend on results of a long-range (completion date 1992) study to determine how best to manage the area's resource values.

RANGELAND

The livestock grazing program in the Farmington Resource Area is authorized by the Taylor Grazing Act of 1934, the Bankhead-Jones Farm Tenant Act of 1937, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978. In addition to issuance of grazing permits and leases, unauthorized use detection and abatement, allotment supervision, and other actions authorized by the previously mentioned legislation, the San Juan Grazing Management Environmental Impact Statement (USDI, BLM 1980) has been completed and approved in compliance with the final judgment of the Natural Resources Defense Council vs. Morton lawsuit, Civil No. 1983-73. That environmental statement provides further program guidance through proposed actions and management objectives for 926,909 acres of public lands within the northern portion of the Resource Area.

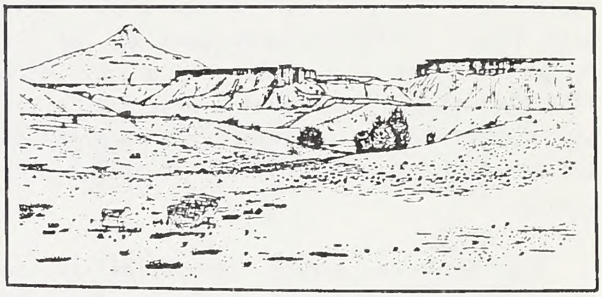
Current management of the livestock grazing program is also guided by the final grazing management policy and the final range improvement policy outlined in Washington Office Instruction Memoranda 82-292 and 83-27, respectively, and which have been incorporated into current manuals, regulations, and handbooks.

The grazing program is basically divided geographically into two separate programs. This division falls along the boundary between the areas formerly designated as the Chaco Planning Unit and the San Juan Planning Unit. These two areas are now referred to as the Chaco Rangeland Management Area and the San Juan Grazing Management EIS (SJEIS) Area, (see Map 1-1). The reason for this division is to differentiate between valid decisions in the SJEIS Area that were the results of National Environmental Policy Act impact analysis and the lack of NEPA compliance on decisions made for the Chaco Rangeland Management Area.

SAN JUAN GRAZING EIS AREA

Specific management in the SJEIS Area is guided by the decisions reached in the San Juan Grazing Management EIS. Basically, these decisions were allotment-specific, and concentrated on stocking levels, season of use, and range improvements.

Because no substantive new issues or conflicts within allotments analyzed by the EIS have occurred, the decisions are still considered valid and are not analyzed further in this RMP. Information about the implementation of EIS decisions can be found in the yearly Rangeland Program Summary, available in the Farmington Resource Area office.



The EIS proposed to protect and enhance the vegetation resource on 926,909 acres of public land in San Juan and Rio Arriba Counties by initiating a program of more intensive grazing management. To implement this program, period of use modifications, construction of rangeland improvements and vegetation treatments, and a monitoring program are being used to accomplish the objectives established by the EIS.

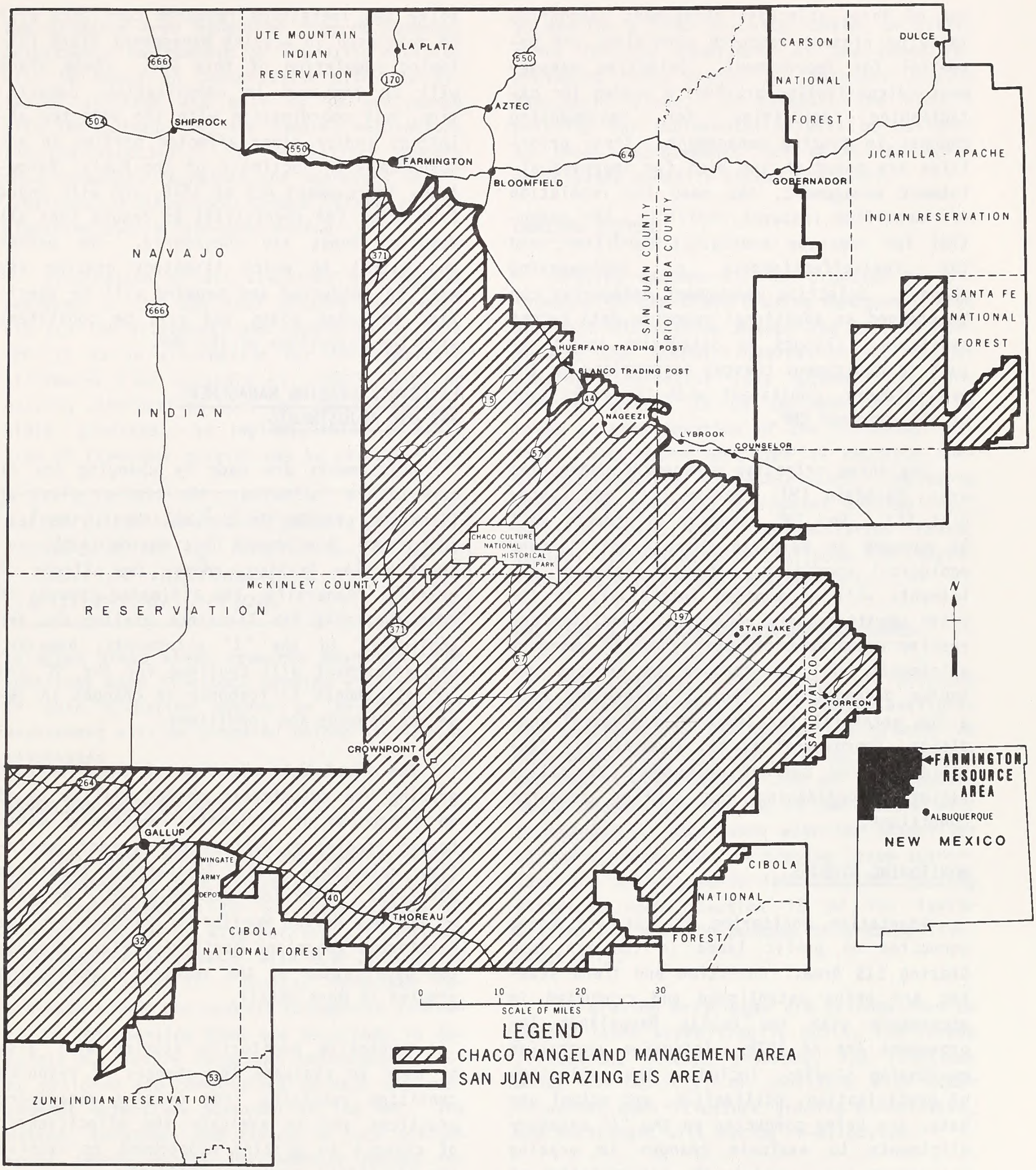
CHACO RANGELAND MANAGEMENT AREA

The Chaco Rangeland Management Area is the southern part of the Farmington Resource Area that has not been covered by a grazing EIS. The livestock grazing program in this area is guided by the decisions outlined in the Chaco Management Framework Plan (USDI, BLM 1981b). Basically, these decisions provided for current levels of grazing management to continue until completion of the grazing EIS which is integrated into the RMP.

SELECTIVE MANAGEMENT CATEGORIZATION

Each of the 138 grazing allotments covered by the San Juan Grazing EIS, as well as the 104 allotments in the Chaco Rangeland Management issue area, have been placed into

FARMINGTON RESOURCE AREA



MAP 1-1

CHACO RANGELAND MANAGEMENT AREA

one of three selective management categories based on present resource conditions and potential for improvement. Selective management categorization provides a system for establishing priorities for implementing changes in grazing management. These priorities are based on the need for improved allotment management, the need for resolution of identified resource conflicts, the potential for improved ecological condition, and the cost-effectiveness of implementing changes. Selective management categories can be changed as additional resource data become available. Changes in categories would result in management changes appropriate to the new category, consistent with the objectives of the approved RMP.

The three selective management categories are: Maintain (M), Improve (I), and Custodial (C). The "M" category allotments will be managed to maintain current satisfactory ecological condition. The "I" category allotments will be managed intensively to improve unsatisfactory ecological condition and resolve resource conflicts. The "C" category allotments will be managed to prevent resource degradation. The "C" allotments have a low potential for improved ecological condition, improvement is not economically feasible, and/or current management is satisfactory, considering the current resource conditions.

MONITORING STUDIES

Vegetative monitoring studies are being conducted on public lands in the San Juan Grazing EIS Area. Condition and trend studies are being established and conducted in accordance with the Public Rangelands Improvement Act of 1978. Intensive vegetative monitoring studies, including the collection of precipitation, utilization, and actual use data, are being conducted on the "I" category allotments to evaluate changes in grazing management and to aid in the determination of livestock grazing capacities. Similar studies will be initiated in the Chaco Rangeland Management Area on completion of the RMP.

GRAZING MANAGEMENT PLANS

Specific management prescriptions to resolve the identified resource conflicts will be developed in Grazing Management Plans following completion of this RMP. These plans will be prepared in consultation, cooperation, and coordination with the affected allottees and/or other affected parties in accordance with Section 8 of the Public Rangelands Improvement Act of 1978, and with input from other FRA specialists to ensure that all resource needs are considered. The manner and extent to which livestock grazing use will be conducted and managed will be specified in these plans and will be consistent with the objectives of the RMP.

LIVESTOCK GRAZING MANAGEMENT AND USE ADJUSTMENTS

Adjustments are made by changing one or more of the following: the kind or class of livestock grazing on the allotment, the season of use, the Animal Unit Months (AUMs) authorized for grazing, and/or the pattern of grazing. Generally, the estimated changes in AUMs available for livestock grazing use are applicable to the "I" allotments; however, use adjustment will continue for the "M" and "C" allotments in response to changes in resource demands and conditions.

The final determination of the livestock grazing use adjustments needed will be based on a program of systematic vegetative monitoring studies as well as the current vegetative data base. BLM Instruction Memoranda WO-82-292, WO-82-650 and NM-82-280, as well as the New Mexico Monitoring Handbook and the Farmington Rangeland Monitoring Plan, discuss the application of the vegetative monitoring studies in more detail.

Vegetative monitoring studies will also be used to evaluate the changes in resource condition resulting from grazing management practices and to evaluate the effectiveness of changes in grazing management to resolve the identified resource conflicts.

The changes in AUMs allocated for livestock grazing use can be implemented either through documented mutual agreement with the affected allottee or by a grazing decision. Adjustments through mutual agreement may be implemented after the public review period of the Resource Area Rangeland Program Summary. Adjustments implemented by a grazing decision will be based on consultation with the affected allottee and will be in accordance with the guidance in the federal regulations (43 CFR 4110.3-3). The regulations specify that permanent increases and decreases in allocations of livestock forage "shall be implemented over a five-year period...."

Elimination of all livestock grazing was analyzed in the San Juan Grazing Management EIS for 138 allotments and considered in this RMP/EIS as an alternative for the remaining allotments (see Appendix K). While both no grazing alternatives were not considered feasible, practical, or implementable, elimination of livestock grazing may be advisable in selected areas where resource degradation or conflicts make livestock grazing undesirable. If this situation occurs an environmental assessment will be prepared before grazing is eliminated.

Increases and decreases in allocations of livestock forage shall be implemented over a five-year period.

RANGELAND IMPROVEMENTS

Additional rangeland improvements would be proposed for each alternative in this RMP, with the exception of the Continuation of Current Management Alternative, and will be developed in accordance with BLM Instruction Memorandum WO-83-27. Typical rangeland improvements and the general procedures followed in implementing them are described in Appendix M. Future rangeland improvements will be designed and constructed to meet the management objectives proposed in the RMP. The extent, location, and timing of such actions would depend on the improvements needed for each allotment, allottee contributions, and BLM funding capability, and would be developed with consideration for other resource uses.

All allotments for which rangeland improvement funds are to be spent will be subjected to economic analysis. This analysis will be used along with other considerations to develop a final priority ranking of allotments for the commitment of the range improvement funds needed to implement Grazing Management Plans. In general, the highest priority for implementation will be assigned to those improvements for which the total anticipated benefits exceed the costs.

GRAZING SYSTEMS

Grazing systems will be proposed for allotments in the Chaco Grazing Management Area for each alternative except the Current Management (No Action) Alternative and the No Grazing Alternative (see Appendix K). The type of system to be implemented will be based on consideration of the following factors: the degree and type of resource conflicts; resource characteristics, including vegetation potential and water availability; allottee needs; and implementation costs. Typical grazing systems available for consideration are described in Appendix L.

UNLICENSED OR RELINQUISHED GRAZING LANDS

Approximately 9,200 acres of unleased public lands generally will remain available for consideration for authorized grazing in accordance with the BLM grazing regulations (43 CFR 4110 and 4130). Any of these public lands leased for grazing in the future will be managed in accordance with the objectives of the approved RMP. A grazing lease authorizes the use of public lands outside grazing districts under Section 15 of The Taylor Grazing Act for the purpose of grazing livestock only.

If grazing privileges are relinquished on public lands where fragile soils, low forage production, fencing problems, low livestock water availability, or conflicts with other resources make livestock grazing undesirable, the privileges will not be re-allocated.

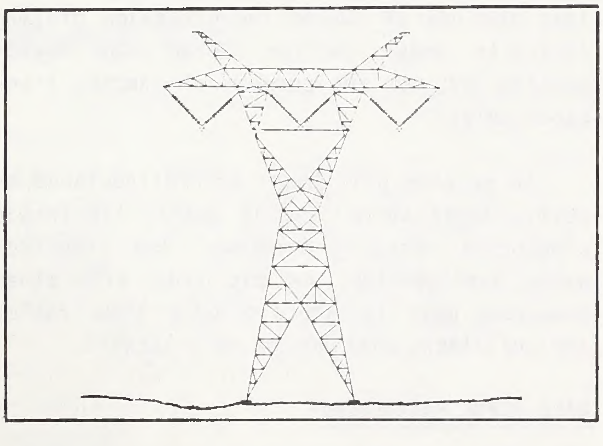
WILD HORSE MANAGEMENT

Guidance for the management of approximately 23 wild horses is provided by decisions reached in the San Juan Grazing Management EIS. Since the size of the herd and other management determinations have remained static since the EIS was published, the decisions are still considered valid. Locations of management areas, specific management objectives, and other management direction information can be found in that EIS.

LANDS

Significant amounts of public lands in the Resource Area are in small, isolated tracts. Land ownership adjustments could achieve more efficient management of the public land resources.

The difficulty with managing much of the public lands in the southern portion of the Resource Area is demonstrated by the extensive unauthorized occupancy and use of public lands in these areas. Past land exchange efforts, public land orders, executive orders, and the Navajo Exchange have attempted, but failed, to totally resolve the problem. Traditional BLM policies on land retention, exchange, and disposal do not work well in the southern portion of the Resource Area. To help alleviate this problem, these lands will be evaluated to determine which lands should be retained or transferred out of BLM administration. The methods of ownership adjustments could include exchanges, sales, transfers, and leases.



LAND OWNERSHIP ADJUSTMENTS

There are basically three categories in which the public lands administered by the BLM can be placed. First, there are lands which the Bureau has identified for retention. With few exceptions these lands would remain in public ownership. The second category is those lands which have been identified through land use planning as being available for land ownership adjustments (exchanges or some other method of disposal). Since there are often intermingled private or state lands among public lands, there is a third possible management category. This category consists of lands that have been identified for acquisition by the BLM to help consolidate public use areas and improve certain Bureau programs.

RETENTION ZONES

The Federal Land Policy and Management Act (Public Law 94-579 Oct. 21, 1976 - FLPMA) states that public lands should be retained in federal ownership unless adjustment is in the public interest. Therefore, public surface will remain under BLM administration if resources of national, state, or regional significance are found upon them, and the possible adverse effects of the adjustment action cannot be mitigated at reasonable cost. Examples of such resources are: habitat for threatened or endangered species, riparian areas, wetlands, mining claims and important cultural resources.

EXCHANGE ZONES

Any lands designated for land ownership adjustment must be so identified through the Bureau's land use planning process. Additionally, all lands identified for sale in this RMP must meet the criteria established in Section 203 of FLPMA. Use authorizations such as Recreation and Public Purposes (R&PP) leases will be considered for approval as they are received.

The federal government will generally retain all mineral rights, reservations for ditches and canals, and rights-of-way or easements if necessary when conducting exchanges or other types of disposal actions.

Existing authorized permits, leases, rights-of-way, and licenses will be identified as valid existing rights. All exchanges or disposals of public land will be subject to valid existing rights. Holders of valid permits or cooperative agreements covered by Section 4 of the Taylor Grazing Act will be reimbursed, by the new land owner, for financial investments they have made in rangeland improvements on public lands if the BLM exchanges or disposes of the land.

The following major land transfer actions are listed in their order of preference:

1. State In-Lieu selections
2. State exchanges
3. Private exchanges
4. Recreation and Public Purpose patents
5. Withdrawals to other federal agencies
6. Public sales
7. Other methods of adjustment

ACQUISITION ZONES

Management is improved by consolidating public lands in contiguous land ownership patterns. The land ownership patterns shown on Map A (in back cover pocket) may be adjusted through exchange. Acquisitions to consolidate land ownership, public use areas, wildlife habitat, watersheds, land treatment areas, grazing administration, cultural values, and other resource management needs would have priority.

PUBLIC LAND EXCHANGES/SALES

There has been an active land exchange program in the Resource Area for a number of years. During the last three years a total of 60,230 acres has been transferred out of BLM administration. These transfers have enabled the Resource Area to resolve problems of conflicting use and allowed acquisition of approximately 77,700 acres of high-value lands needed for Bureau programs within the state. All exchange proposals are prepared in conformance with NEPA requirements, including extensive public review. Public lands which leave federal ownership as a result of exchange actions have been identified as suitable for land ownership adjustment in a previously approved planning document.

On Oct. 3, 1984, the Bureau of Land Management New Mexico State Director and the Commissioner of Public Lands of the State of New Mexico signed a Memorandum of Understanding to establish a comprehensive, long-term statewide land exchange program between the BLM and the State of New Mexico (USDI, BLM 1984b). The objectives of this program are to improve the land management potential of both state and federal lands; eliminate unnecessary federal and state conflicts generated by existing ownership patterns; facilitate the management of state and BLM lands by substantially realigning the scattered state and BLM sections and creating solid block or consolidated land ownership; and develop procedures that are most expeditious and cost-effective.

> *A pool of land is to be used to complete land exchanges for private inholdings within the Chaco Park.*

Public Law 96-550, which expanded the boundary of the Chaco Culture National Historical Park, requires the Secretary of the Interior to designate a pool of federal property at least three times the private acreage included in the new park boundary. This pool of land is to be used to complete land exchanges for private inholdings within the park. Similarly, Public Law 98-603 requires the BLM to exchange public lands or interest for 2,520 acres of state inholdings and 1,652 acres of Indian allotment inholdings within the De-na-zin Wilderness. Consequently, the lands designated for land ownership adjustment in each alternative can be used to accomplish these exchanges.

Sales of public lands identified as suitable for adjustment in an approved land use plan are administered on a case-by-case basis. All sale actions are examined through the NEPA process and are subject to public participation and review. Exchange or sale of any land must meet the adjustment criteria established for these types of actions in FLPMA.

PUBLIC LAND WITHDRAWALS

In an effort to keep as much of the public land open to the widest variety of uses, the BLM reviews existing withdrawals on public lands on a periodic basis. This review ensures that the reasons for the withdrawals are still valid and that only the acreage needed is retained in withdrawn status. Withdrawal reviews will be completed by 1991 for current withdrawals. Upon revoking or modifying a withdrawal, all or part of the withdrawn land could be restored to multiple use management.

BLM policy is to minimize the amount of public land withdrawn, particularly from mining and mineral leasing, and where applicable, to replace existing withdrawals with rights-of-way, leases, permits, or cooperative agreements. Withdrawal applications will be reviewed to determine if formal withdrawal is needed.

RECREATION AND PUBLIC PURPOSES

A number of inquiries are received annually concerning the leasing of public lands under the authority of the Recreation and Public Purposes (R&PP) Act. Under the Act, the BLM has the authority to lease or patent public lands to governmental or non-profit entities for public parks, building sites, correction centers, or other public purposes. Applications are processed under the requirements of the National Environmental Policy Act (NEPA) and are subject to public review. Approximately three of these inquiries proceed beyond the application stage each year.

RIGHTS-OF-WAY

The FRA grants rights-of-way, leases, and permits to qualified individuals, businesses, and governmental entities for the use of the public lands. As of 1986 an average of 300 energy-related and 50 non-energy right-of-way cases are processed each year. Protection of natural and cultural resources is considered in the granting process. Rights-of-way are also issued to promote the maximum utilization of existing rights-of-way, including joint use whenever possible. Over the past 15 years, numerous de facto right-of-way corridors have evolved throughout the Resource Area. Because of topographic and land ownership constraints, it is anticipated that portions of these de facto corridors will continue to be utilized. All right-of-way actions are coordinated, to the fullest extent possible, with federal, state and local government agencies, adjacent landowners, and interested individuals and groups. All right-of-way applications are analyzed on a case-by-case basis.

NAVAJO OCCUPANCY RESOLUTION PROGRAM

The Navajo Occupancy Resolution Program has been initiated by the Resource Area to deal with lands problems in the southern portion of the Resource Area. Its first objective is to develop a land tenure program which will authorize or eliminate those homesites remaining after completion of the Navajo exchange (PLO-5721) while preventing future unauthorized occupancies. Approximately 500 homesites have been legalized since 1980. The second objective is to complete a plan which would provide guidance for the consolidation of both public and Navajo lands. This process would require a review of existing withdrawals and identification of any new withdrawals and legislation necessary to complete land transfers needed for consolidation.

> ***BLM policy is to minimize the amount of public land withdrawn, particularly from mining and mineral leasing.***

Withdrawals to the BIA for the purpose of benefitting Indian groups will only be used for administrative sites and for segregating the land from operations under the mining laws in support of land exchange or sale proposals. They will not be used for transferring management responsibility.

Close coordination with the Navajo Tribe, the BIA, and the Department of Interior in the development of a suitable land tenure program is essential for this program to be successful.

ACCESS

The Farmington Resource Area has not had an active easement acquisition program. This is largely due to the numerous roads located throughout the Resource Area that have historically been open to the public. For the most part this network of roads (estimated at over 10,000 miles) was generated by oil and gas development in the San Juan Basin. Normally only one or two easements are acquired each year. As required by Bureau policy, these easements generally provide legal access to BLM-initiated range improvement projects and recreation areas.

FORESTRY

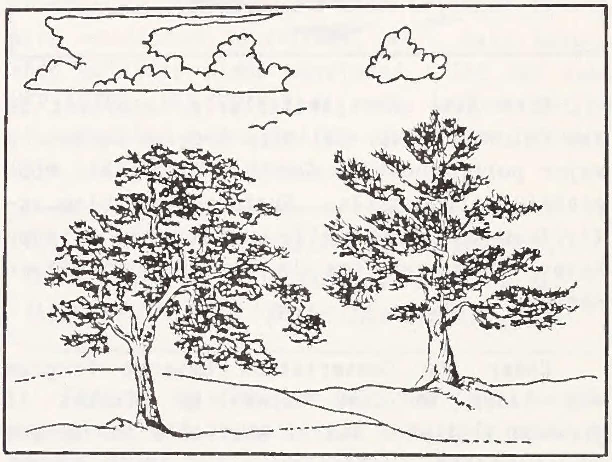
The forestry program within the Farmington Resource Area consists of managing limited ponderosa pine stands and extensive pinyon-juniper woodlands. Congress has mandated through FLPMA that the forestry and woodland program be managed on the basis of multiple use and sustained yield. The Material Disposal Act of 1947, as amended, establishes the authority under which the BLM disposes of timber and other forest products.

PONDEROSA PINE

The long-term goal of ponderosa pine management in the Resource Area is to increase reproduction and stand vigor, as well as to reduce encroachment of pinyon-juniper into the ponderosa pine stands. Providing for the long-term maintenance of the ponderosa pine stands is also a goal of the program. Since existing ponderosa pine is managed for enhancement and protection of the stands, rather than the maximization of forest products, no specific allowable cut goals will be established for this species. All forestry practices implemented in the Resource Area will be in conformance with standard silvicultural practices and the 1981 environmental assessment for the Timber Management Plan (USDI, BLM 1981c), covering the BLM Albuquerque and former Socorro Districts. All activity plans developed for forestry and woodland products are examined through the NEPA process and are subject to public review and participation.

PINYON-JUNIPER

The main guideline document for the woodland (pinyon-juniper) program is the Public Domain Woodlands Management Policy Statement (USDI, BLM 1982c). The long-term goals of the woodland management program in the Farmington Resource Area are to establish and maintain healthy stands producing fuelwood on a sustained yield basis in established woodland management areas, to reduce trespass cutting throughout the Resource Area and to manage stands with consideration for other forest and woodland product yields.

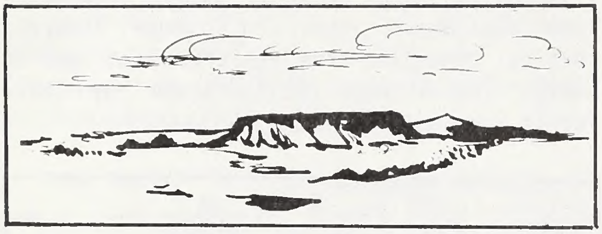


The pinyon-juniper woodlands within the Resource Area are managed on a sustained yield basis. The first priority sources for fuelwood supply are, when practical, dead-and-down wood from chainings and chemically treated areas, rights-of-way and well pad clearings, and tree-thinning areas. Greenwood areas are rarely utilized. Specific silvicultural standards are established at the activity planning stage and are written on a site-specific basis. The silvicultural standards are consistent with acceptable methods for the species and site.

SOILS

Participation with the USDA Soil Conservation Service in the National Cooperative Soil Survey will continue. Continual evaluation and updating of older soil surveys is necessary to maintain a current database. Detailed soil surveys for individual projects will be conducted as needed.

Soil information will be used in planning, support, and implementation of all resource activities. Emphasis is placed on prevention of deterioration or degradation of soil and water resources as well as on their conservation.



Soil data are particularly important to the Colorado River Salinity Program because a major portion of the San Juan Basin has moderately saline soils. Surface-disturbing activities on these soils add to the already severe salt problems in the Colorado River Basin.

Under the Conservation Reserve Program all lands in Soil Capability Classes II through VIII will not be available for desert land petition applications or agricultural leases. The program seeks to remove highly erodible lands from marginal agriculture operations.

The soils program will continue to provide support to other resource activities in the Resource Area. The program will also continue to emphasize its legislative mandates of protection, maintenance, and enhancement of the soil resources.

HYDROLOGY

Policy and guidance for the management of water resources associated with lands administered by the Bureau is summarized in Manual Sections 1621, 7000 and 7200. A brief description of the different authorities for the program is also presented.

Current management direction is provided in completed Management Framework Plans (MFPs), the San Juan River Regional Coal EIS, the San Juan Grazing Management EIS, and specific policy statements. General program emphasis is on water rights, water quality, and watershed improvement - specifically water quantity (runoff) and channel stability (sediment yield). Additionally, the water resource program provides direct input to specific situations in proposed or ongoing resource development and management programs.

WATER RIGHTS

Currently, a water use and rights inventory is being completed in the Resource Area in order to identify and quantify federal water uses and to determine the status of BLM's water right filings. Information compiled from the inventory will be used to finalize BLM water rights.

All water rights are acquired in accordance with state substantive and procedural law except where Congress or the Executive Branch have created a federal reservation with a reserved water right.

Federal reserved water rights are defined based on the Interior Solicitor's Opinion of June 25, 1979, as modified by Solicitor Coldiron's September 11, 1981, Opinion. BLM's federal reserved water right claims are primarily associated with the withdrawal established by the Executive Order of April 17, 1926, dealing with public water reserves, and the withdrawal for converted oil and gas wells under the Oil and Gas Well Conversion Act of June 16, 1934.

BLM works to ensure that management & development practices comply with state water quality standards.

WATER QUALITY

Water quality regulation in the United States receives its basic authority from two laws. The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977, is the basic authority for instream water quality standards and maximum permissible pollutant discharges. The Safe Drinking Water Act of 1974 is the basic authority for domestic water quality standards.

The Bureau's water resource program includes participation with the state and EPA in water quality management. Specifically, the BLM works to ensure that management and development practices comply with state water quality standards.

The Colorado River Salinity Control Act passed in 1974 directs the Secretary of the Interior to undertake research and development of salinity control projects and to develop methods to improve water quality. An amendment to the Act passed in 1984 specifically requires the Director of the BLM to develop a comprehensive program for minimizing salt contributions to the Colorado River from Bureau-administered lands. There are definite opportunities to reduce contributed salinity levels in the Resource Area, and these will be addressed during the preparation of resource activity plans including specific watershed activity plans.

DAM SAFETY PROGRAM

The first phase of this program is an inventory of dams, assessing the condition and maintenance needs of each structure. The second phase includes the development of a maintenance and rehabilitation plan for all structures, and preparation of Emergency Action Plans for High Hazard Dams (those dams for which dam failure represents a threat to life or property). Most of these structures represent large investments and those costs will be included in any land disposal and exchange appraisals.

WATERSHED ACTIVITY PLANS

In order to organize the workload in watershed rehabilitation and maintenance, a review of existing plans, inventories, and decision documents will be undertaken. This will provide a ranking of watershed priorities based on conditions and impacts, and be responsive to available funding.

Control of erosion, sediment, and salt production remains a high-priority management goal. Areas with critical to severe (1.0 to greater than 3.0 acre $ft/mi^2/yr$) sediment yields, along with areas that produce runoff having greater than 1,000 milligrams per liter (mg/l) dissolved salts, will be of major focus.

Within the FRA Resource Management Planning area, modification of existing Allotment Management Plans (AMPs) that adequately address watershed problems is preferred to development of separate activity plans. Those allotments without AMPs, but containing areas identified in previous planning documents or inventories as having either Critical or Severe watershed conditions, will have watershed activity plans developed. The San Juan MFP (USDI, BLM 1979c) directed implementation of watershed plans for the Gobernador, Largo, Pine, and Cereza Creek watersheds.

Control of erosion, sediment, and salt production remains a high-priority management goal.

Efforts to minimize new road construction and close and rehabilitate unneeded roads to reduce water and wind erosion will continue. This direction was provided in the San Juan and Chaco MFP documents, and the San Juan Grazing Management EIS.

The hydrology program will continue to emphasize its legislative mandates of protection, maintenance, and enhancement of the resources as well as provide support to other resource activities in the Resource Area.

AIR QUALITY

Reduction of air quality impacts from activities on public lands is accomplished by mitigation measures developed on a case-by-case basis through the NEPA or other statutory or regulatory processes. Each impact is evaluated to see if it is allowable and acceptable. Activities such as road construction and mining have dust abatement programs as part of their permits or contracts.

The BLM is required to comply with the New Mexico State Implementation Plan on air quality as well as meet responsibilities under the Clean Air Act, as amended, and FLPMA.

The BLM 7300 Manual will provide administrative guidance on air resources upon approval.

SCENIC QUALITY

VISUAL RESOURCE MANAGEMENT (VRM)

Visual resources will continue to be inventoried and evaluated as part of activity and project planning. A contrast rating process is used as a project assessment tool during environmental review of affected areas. Stipulations are established as appropriate to ensure compatibility of the project with management objectives for visual resources.

Congressionally designated areas are subject to Class I VRM guidelines. Wilderness Study Areas are subject to an interim Class II category. Special Management Areas recommended for and designated in the Farmington Resource Area RMP will contain the VRM class management objective in their prescriptions if applicable.

MANAGEMENT OBJECTIVES

The BLM administers visual resources according to four VRM Class objectives (see Appendix G for descriptions). The chart below displays the public land acreages by class.

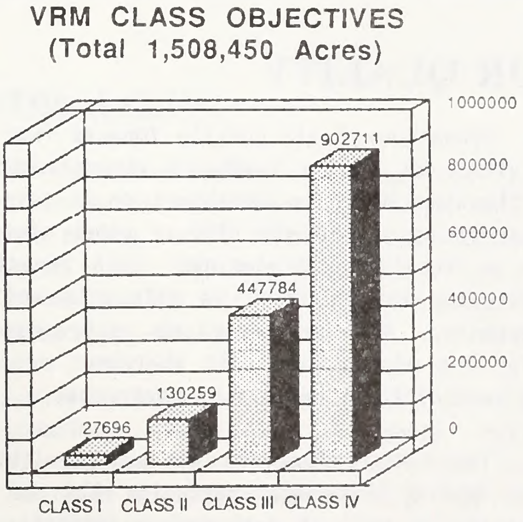


FIGURE 1-1

PROGRAM DIRECTION

The VRM System will continue to be the basic tool for inventory, planning, and management of visual resources on public lands. Future efforts will concentrate on updating the visual resource inventory database and re-establishing VRM class objectives. The BLM recognizes the constantly changing natural resource base and its effects on scenic quality. Each multiple-use program has the responsibility to complete visual contrast ratings for all projects proposed for highly sensitive areas and for potentially high impact projects, regardless of location.

> *The BLM recognizes the constantly changing natural resource base and its effects on scenic quality.*

FIRE

The District fire program is directed by legislation and Bureau manual supplements. The main objective of the fire management program is to protect and enhance the resources of the public lands in order to preserve their capability to contribute toward meeting the resource needs of the nation. Because of the nature of the program and the implementation of the National Interagency Incident Management System, the overall fire management program exceeds Resource Area, District, and state boundaries in support of the national program.

The Bureau is directed by departmental policy (910 DM 1.1) concerning the suppression of wildfire. The suppression of wildfire, regardless of ignition source, is a high-priority Bureau activity. The highest priority is given to the prevention of disaster fires by aggressive prevention and suppression actions. In general, aggressive action is taken to contain all fires on or threatening the public lands during the first burning period, except in areas where an approved Limited/Conditional Suppression Plan is in effect such as in Wilderness Areas.

From departmental policy and the 9211 manual, the District develops its Fire Management Plan, Normal Fire Year Plan (NFYP), and Fire Activity Plan (District Fire Plan). The District Fire Plan is the activity plan that establishes how the District will operate when responding to a fire call.

Aggressive action is taken to contain all fires on or threatening public lands.

All fires will be fully suppressed unless approved limited/conditional fire management plans are written and approved. Refer to Appendix B, Special Management Areas (SMAs) for recommendations if limited/conditional plans are to be developed. Bureau policy (BLM Manual Section 9210.06E) provides for limited/conditional fire suppression actions in those areas with an approved fire management plan. The need for limited suppression is normally identified by fire specialists, resource specialists, and management. Economic benefit (resource value versus cost of suppression), along with crew safety, is normally the principal objective. The decision to allow a fire to be placed under limited suppression will depend if the fire falls within the established constraints.

The Fire Management Officer (FMO) and/or the Area Manager may overide the plans and require the fire to be fully suppressed if deemed necessary. The established constraints for immediate and appropriate suppression are if the fire endangers life or property or if the fire threatens to cross property boundary lines (private, state, or other federal). Oil and gas pads will have a 100 yard initial attack buffer zone. The NFYP must be amended to include the new SMAs instead of the previous six identified in the plan. In the case of fire emergencies, fire control vehicles shall be exempt from restrictions in designated "ORV closed areas" if deemed necessary by the FMO and/or the Area Manager. Off-the-road vehicular travel shall be restricted to the route of least damage and impact to the environment.

The Farmington Resource Area may do prescribed burning in support of resource management objectives. Burn plans and environmental assessments will be developed and approved at the activity plan level. Prescribed burning has been used sparingly in the past. Opportunities for prescribed burning exist in support of wildlife and range management.

Through the District, the Farmington Resource Area is involved with the "Joint Powers Agreement Between the State of New Mexico and Federal Agencies of the Department of Agriculture and Interior." The purpose of this agreement is to provide mutual wildfire assistance between signed co-operators. This agreement is established at the State Director level. The Joint Powers Agreement is further defined by the establishment of Joint Powers Operating Plans. The Farmington Resource Area is covered by the Santa Fe and Carson Operating Units. These plans establish initial attack zones of responsibility, regardless of land ownership. Zones were established based on "closest force" concept, capabilities, and fire frequencies. The operating plans are approved at the District Manager level.

The Farmington Resource Area may do prescribed burning in support of resource management objectives.

WILDLIFE

Legislation such as the Federal Land Policy and Management Act of 1976 (FLPMA), the Endangered Species Act of 1973, and the Public Rangelands Improvement Act of 1978, as amended, have directed the BLM to improve management of wildife habitat to meet wildlife needs in the face of increasing demands for basic energy supplies, building materials, and food products. It is the responsibility of the Farmington Resource Area to identify opportunities to maintain, improve, and expand wildlife habitat on the public lands for both consumptive and non-consumptive use and identify portions of the wildlife resource deserving special attention. Furthermore, it is Department of Interior Policy (as specified in 43 CFR 24.4) that Interior agency fish and wildlife management strategies assist state agencies in accomplishing fish and wildlife resource plans.

> ***All range and watershed improvements will continue to be designed to achieve both range and wildlife objectives.***

All actions in the FRA are reviewed and given site-specific analysis during the environmental assessment process to determine whether the action will affect wetland or riparian areas. Also considered are impacts to resident species' habitat or habitat improvement projects and compatibility with the New Mexico Department of Game and Fish Comprehensive Wildlife Plan (NMDGF 1980). All range and watershed improvements will continue to be designed to achieve both range and wildlife objectives. This includes location and design of waters and vegetation manipulation projects. Fences are designed to cause the least resistance to wildlife movement.

ANIMAL DAMAGE CONTROL

Animal damage control activities on public lands in the Resource Area are guided by Department of the Interior policy and the annual Animal Damage Control Plan for the Albuquerque District, prepared jointly by the U.S. Department of Agriculture (USDA) and the BLM. The USDA has overall responsibility for the program and supervises all control activities. The BLM has approval responsibility for the specific control actions on public lands.

HABITAT MANAGEMENT

Activity plans for habitat management consist of approved Habitat Management Plans (HMPs). The Huerfano/La Plata HMP is scheduled to be finalized during FY 87. Implementation of existing HMPs (Pump, Rosa/Middle Mesa, Largo, and River) will continue as funding allows. The Largo HMP may undergo revision to conform with the New Mexico Department of Game and Fish (NMDGF) plans in regard to Barbary sheep management.

Detailed estimates of big game forage allocations are presented in the San Juan Grazing Management Environmental Impact Statement (USDI, BLM 1980). Monitoring of the big game habitat through browse utilization transects will continue to be conducted as part of the rangeland program monitoring plan. The information obtained from the transects will be incorporated into final grazing decisions.

INTERAGENCY AGREEMENTS

The wildlife program in the FRA functions in part through a variety of cooperative agreements with other agencies. A master Memorandum of Understanding (MOU No. NMSO-41) with the NMDGF delineates the duties and responsibilities of each agency. Other pertinent cooperative agreements are summarized in Table 1-1.

The Resource Area is also in the process of developing a cooperative management agreement with NMDGF for management of public lands next to the Jackson Lake Wildlife Management Area.

THREATENED OR ENDANGERED SPECIES MANAGEMENT

The Endangered Species Act requires that the BLM consult with the U.S. Fish and Wildlife Service on all actions which may affect a threatened or endangered species.

BLM policy for the endangered species program is to give first priority to the protection of habitat for known populations of listed species. The second priority is to implement recovery plans for listed species.

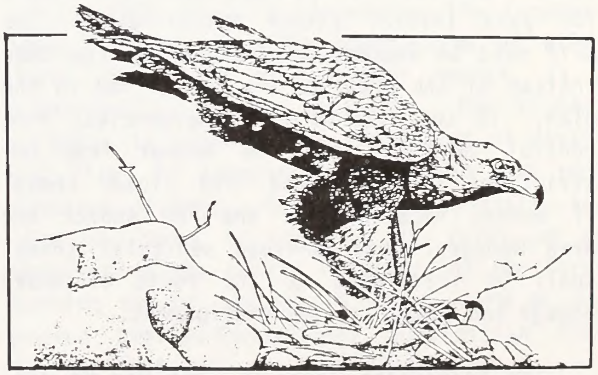


TABLE 1-1: COOPERATIVE AGREEMENTS RELATING TO WILDLIFE

Agreement or MOU Number	Cooperating Agencies	Subject
*NMSO-39	NMDGF	Cooperative Management of Navajo Dam Land and Wildlife Management Plan
NMSO-46	NMDGF	Coordination of Vegetal Control Projects
**NMSO-87	USFWS, NM Department of Agriculture, NMDGF	Interagency Animal Damage Control Guidelines for New Mexico
NMSO-184	NM Department of Natural Resources	Natural Resources Data Base Coordination
NMSO-22	NMDGF	Master MOU delineates agency responsibilities for wildlife and habitat management

*Expired 10/01/85

**Animal control responsibilities have been transferred from USFWS to USDA.

Present management for threatened or endangered species consists of evaluating all proposed actions for their potential impact on known populations of, or potential habitat for, listed or candidate species. These evaluations are also conducted on split estate lands if the surface managing agency does not have adequate data.

For threatened or endangered plants, an Area-wide sensitive plant HMP is needed.

Protection and management of bald eagle roost areas and threatened or endangered plant areas will continue. In order to progress beyond a strictly reactive program for threatened or endangered plants, an Area-wide sensitive plant HMP is needed. Inventory for candidate species will continue and monitoring programs will be implemented on known populations of listed and candidate species. Where monitoring identifies threats to these populations, appropriate actions will be taken to protect the species and its habitat. Species recovery plans will be implemented as funding and staffing allow.

WILDERNESS

The Bisti and De-na-zin Wilderness Areas will be administered under 43 CFR 8560 and the Wilderness Management Policy (USDI, BLM 1981a). Wilderness Management Plans will guide the specific management of the areas. A Wilderness Management Plan has been completed for the Bisti Wilderness (USDI, BLM 1986) and a draft is scheduled to be completed for the De-na-zin Wilderness in 1987.

The Ah-shi-sle-pah Wilderness Study Area (WSA) will be managed under Interim Management Policy and Guidelines for Land Under Wilderness Review (USDI, BLM 1979), until the area is added to the National Wilderness Preservation System or removed from further wilderness consideration. If designated as wilderness, the area will be managed under the Wilderness Management Policy (USDI, BLM 1981a). If removed from further wilderness consideration, the area will be managed under the principles prescribed by this RMP. The WSA has been recommended by the BLM as unsuitable for wilderness designation (Final Bisti, De-na-zin, Ah-shi-sle-pah Proposed Wilderness EIS, USDI, BLM 1983).

CULTURAL RESOURCES

The BLM's cultural resource program has two roles: primary and support. The elements in the primary role include inventory, nominations to the state and National Registers and the National Historic Landmark program, Cultural Resource Management Plans, protection of cultural properties, and issuance of cultural resource use permits. The support role focuses on the BLM's responsibilities for compliance with state and federal law, particularly with Section 106 of the National Historic Preservation Act of 1966 (NHPA). These elements are based on legislated responsibilities outlined in the Antiquities Act of 1906, the NHPA as amended, the National Environmental Policy Act of 1969, Executive Order 11593, the Archeological and Historic Preservation Act of 1974, the Federal Land Policy and Management Act of 1976, the American Indian Religious Freedom Act of 1978 (AIRFA), and the Archeological Resources Protection Act of 1979 (ARPA). Policy and management guidance are provided in BLM's 8100 manual for cultural resources.

INVENTORY

There are three classes of inventory:

Class I - examination and evaluation of existing inventory and site data. Required prior to field inventory for all projects.

Class II - field inventory of sample units, usually covering 10 percent of the project area.

Class III - intensive field inventory covering 100 percent of the project area. Required prior to any surface-disturbing activity.

NOMINATIONS

The BLM prepares and submits nominations of significant cultural resource properties located on the public lands to the National Register of Historic Places (NRHP). The BLM also coordinates with other agencies and organizations in nominating cultural resources eligible for inclusion in federal and state cultural resource registry systems.

CULTURAL RESOURCE MANAGEMENT PLANS

Cultural Resource Management Plans have been completed for four Chacoan outliers (Casamero, Kin Nizhoni, Halfway House, and Twin Angels) and are planned for additional Chaco outliers under BLM administration. Other CRMPs for specific cultural resource properties and areas may also be developed in the future.

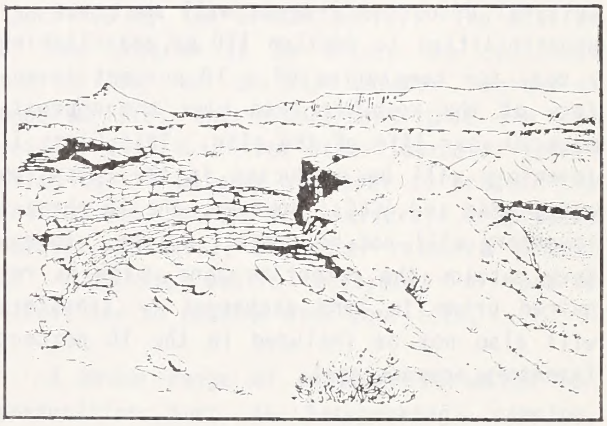
PROTECTION

Administrative measures for protection of cultural resource sites include determination of eligibility for and listing on the National Register, designation of Areas of Critical Environmental Concern and National Historic Landmarks, mineral withdrawals, road closures, and public education programs. Physical protection measures include stabilization, monitoring of site condition, patrol and surveillance programs, signing, and fencing.

Farmington's protection program has focused on implementation of PL 96-550, the Chaco Protection legislation. This law set aside 33 Chaco outliers for special recognition and protection through completion and implementation of CRMPs and other administrative protection measures. In addition PL 96-550 requires development of a joint management plan to provide guidelines for identification, preservation, protection, and research at the sites. The FRA has seven outliers included in this legislation with two more proposed for inclusion.

UTILIZATION

Issuance of cultural resource permits is a top priority for the cultural resources program and is mandated by ARPA. Permits are issued to qualified applicants for inventory, collection, and excavation on public land. Most permits are for non-collection and non-surface-disturbing inventory for small projects conducted prior to oil and gas development. Project-specific permits are issued for all projects requiring collection, testing, or excavation. The BLM is able to track and monitor activities related to cultural resource inventory, recordation, and mitigation through this permitting system.



COMPLIANCE

Compliance with Section 106 of the NHPA dominates the workload of the cultural resources staff with an average of 1,300 undertakings reviewed every year. Section 106 requires the BLM to take into account the effects of its actions or authorizations on cultural resources. The BLM's policy is to avoid impacts to sites, but if impacts cannot be avoided, mitigation may be required prior to approval of the undertaking. Determination of effect on cultural properties is completed in consultation with the State Historic Preservation Office (SHPO) and follows procedures outlined in NMSO-168. NMSO-168 is a procedural agreement issued pursuant to 36 CFR 800, the Federal Regulation which implemented Section 106 of the NHPA.

NMSO-168 has resulted in the streamlining of the consultation process, allowing BLM to approve actions having no effect or no adverse effect on cultural properties prior to formal consultation. The agreement also speeds mitigation of effect in cases where the SHPO and BLM agree on a course of action, therefore eliminating time-consuming consultations involving the Advisory Council on Historic Preservation.

PROGRAM DIRECTION

Section 110 of the National Historic Preservation Act states that it is the responsibility of each federal agency to establish a program to locate, inventory and nominate all properties under the agency's ownership or control that appear to qualify for inclusion in the National Register. The Area Cultural Resources Program will meet its responsibilities to Section 110 by establishing a goal for completion of a 10 percent inventory of the Resource Area over the approximate 20-year life of the plan. This Class II inventory will be conducted in the retention zone, SMAs and ACECs; however, the 10 percent inventory will not be project driven. Inventory outside the retention zone which is required prior to land exchanges or transfers will also not be included in the 10 percent inventory acreage goal.

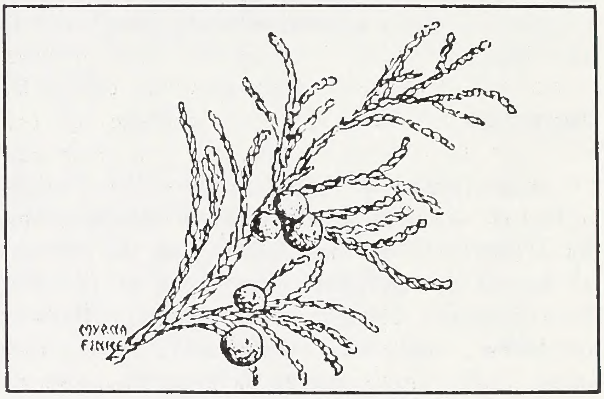
> ***A goal is to complete a 10 percent inventory of the Resource Area over the 20-year life of the plan.***

Although the 10 percent sample will be stratified across the entire Resource Area, an initial focus will be in regions of potentially conflicting uses. This sample will provide comprehensive data which may be used to determine significance of sites and enable the BLM to make well-balanced decisions for protection of cultural resources. An overall goal of the sample inventory will be to gather sufficient data to build a model of site density and distribution for the Resource Area.

In addition, National Register nominations will be prepared on a regular basis. A goal of one nomination per year has been set. These actions will allow the cultural resources staff to make better informed decisions about the direct and indirect impacts on cultural resources. It will also significantly strengthen the current management approach for protection of cultural resource sites.

PALEONTOLOGY

Paleontological resources have a wide range of value to different facets of the public including scientists, educators, hobbyists, and commercial collectors. They are managed on public lands by the BLM because of their scientific and educational values. Without protection they may be damaged or destroyed by intentional or unintentional acts and the information they reveal about the past may be lost.



In order to protect the paleontological resources, and to realize their value, paleontological resource program objectives include the following:

(1) To facilitate paleontologic research and collection on public lands.

(2) To provide for other paleontologic resource uses such as education and recreation.

(3) To protect scientifically and educationally valuable paleontological resources when in conflict with other natural resources and land uses.

(4) To accord the protection provided under law to scientifically valuable fossils.

(5) To allow commercial and hobby collection under 43 CFR 8365.15.

To achieve these objectives, the paleontological resources management program will implement the following:

(1) Identify and evaluate paleontological resources so they may be adequately addressed by the BLM planning system and environmental analysis documents.

(2) Maintain and conduct an effective and continuing paleontological resources management program as part of its planning system.

(3) Increase the awareness of federal land managers and the public regarding the importance of paleontological resources and management requirements, and encourage public participation in their management.

(4) Develop volunteer or cooperative management agreements and associations with individuals, professional paleontologists, local organizations, universities, museums, and governmental entities in order to facilitate the management and protection of paleontological resources.

(5) Avoid or mitigate impacts to scientifically valuable paleontological resources at a level commensurate with their importance.

(6) Promote awareness among users of the public lands of the importance of paleontological resources in order to augment management and protection objectives. Efforts will continue to be made to avoid focusing attention on the exact location of scientifically significant paleontological resources if such attention would conflict with management objectives for those resources.

The Fossil Forest Research Natural Area is being managed under the Interim Management Plan developed July 1986. The plan was developed in accordance with final rules and regulations published in the Federal Register November 18, 1985.

Although there is no apparent great demand for the paleontological resource, a steady interest in the form of permit applications is expected to continue.

Overall, the BLM recognizes the value of paleontological resources and continues to strive to meet the objectives described above. The BLM encourages public input to manage the resources in the best way possible.

OUTDOOR RECREATION

Recreation programs are managed according to multiple use principles unless otherwise specified by law or BLM policy. The mission of the program is to ensure the continued availability of quality outdoor recreation opportunities and experiences that are not readily available from other sources. Recreation use is managed in order to protect the health and safety of visitors; to protect natural, cultural, and other resource values; to stimulate public enjoyment of public lands; and to resolve user conflicts.

A broad range of outdoor recreation opportunities such as backpacking, camping, sight-seeing, and motorcycling, will continue to be provided for all segments of the public, commensurate with demand. Trails and other means of public access will continue to be maintained and developed where necessary to enhance recreation opportunities and allow public use. Recreation resources will continue to be evaluated on a case-by-case basis as a part of project-level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of recreation resources in the affected area. Stipulations will be attached as appropriate to ensure compatibility of projects with recreation management objectives.

Backpacking, camping, sight-seeing, and motorcycling will continue to be provided.

DEVELOPED RECREATION

The Simon Canyon Recreation Area Management Plan (USDI, BLM 1985e) provides detailed management direction for Simon Canyon Recreation Area and Area of Critical Environmental Concern.

The San Juan Management Framework Plan (USDI, BLM 1979) provides general management direction for Angel Peak Recreation Area.

DISPERSED RECREATION

Current management direction for dispersed recreation opportunities is provided for in the Code of Federal Regulations 8300 and subsequent BLM manuals. Detailed direction for primitive and unconfined types of recreation can be found in the Bisti Wilderness Management Plan and will be provided for in the De-na-zin Wilderness Management Plan. The Ah-shi-sle-pah Wilderness Study Area is administered under the Wilderness Interim Management Policy concerning recreation opportunities.

MOTORIZED RECREATION

It is BLM policy that all public lands be designated as "open," "limited," or "closed" to motorized vehicle use. Public lands in the Farmington Resource Area will be designated "open" to motorized vehicles unless an interim, standard, or emergency closure designation is in effect or needed to restrict or close areas in order to protect resources, reduce user conflicts, and/or enhance public safety.

It is BLM policy that all public lands be designated as 'open', 'limited' or 'closed' to motorized vehicle use.

RECREATION OPPORTUNITY SPECTRUM (ROS)

The BLM utilizes the ROS as a framework for defining outdoor recreation opportunity environments. It is the management tool for inventory, planning, and administration of outdoor recreation resources on public lands. A general description of the ROS is in Appendix F. Refer to BLM Manual 8320 for details.

ROS MANAGEMENT OBJECTIVES

Of the six ROS classes, the Farmington Resource Area has established five ROS class objectives. The chart below displays the public land acreages per ROS class management objective.

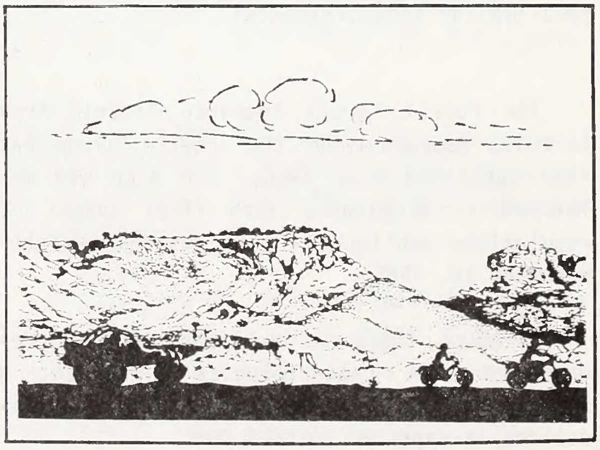
ROS OBJECTIVE	ACREAGE
Primitive (P)	= 10,000
Semi-primitive nonmotorized (SPNM)	= 24,000
Semi-primitive motorized (SPM)	= 180,000
Roaded Natural (RN)	= 886,400
Rural (R)	= 30,000
Urban (U)	= 0

(ROS Study Area = 1,130,400 acres)

Special Management Areas recommended for and designated in the FRMP will contain the ROS class management objective in their prescriptions, if applicable. See Appendix F for a description of ROS management objectives.

PROGRAM DIRECTION

The outdoor recreation program will use the Recreation Opportunity Spectrum as a basic tool for inventory and management to ensure the general public the continued variety of quality recreational opportunities. Providing opportunities for back-country recreation and more developed types of recreation close to major urban areas will be stressed. Motorized vehicle recreation including off-road and off-highway vehicle use will be maintained to the greatest extent possible under existing policy. A concentrated effort will be made to locate and establish use areas and trails compatible with social and natural environments in close proximity to heavily populated areas.



PLAN ALTERNATIVES

ALTERNATIVES CONSIDERED

The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) require the identification of a proposed action and/or preferred alternative, as well as a reasonable range of alternatives that could result in the resolution of the issues.

Four alternative Resource Management Plans are identified in this section and analyzed in this RMP/EIS. The first alternative discussed represents a continuation of current management practices; for the purpose of the RMP/EIS, this constitutes the No Action Alternative. The second alternative stresses resource conservation and the third, the production of commodity resources. The fourth, the Preferred Alternative, provides for a variety of uses by incorporating features of the No Action, the Resource Conservation, and the Resource Production Alternatives.

The Preferred Alternative provides for a variety of uses by incorporating features of the other three alternatives.

These alternatives were developed as a range of reasonable combinations of resource uses and management practices to respond to the planning issues and provide, in combination with the Continuing Management Guidance, management direction for all resources. They also provide a distinct choice among potential management strategies. Each alternative conforms to FLPMA policy that the public lands be managed on the basis of multiple use and sustained yield. Table 1-2 quantifies how each of the seven issues is affected under the four alternatives being analyzed.

A "no grazing" alternative was initially proposed for the vegetative uses issue. However, since this "no-grazing" alternative would not conform to the BLM requirement that alternatives be feasible, practical, and implementable, it was eliminated from consideration. The impacts of implementing a no-grazing alternative on the public lands in the issue area (see Map 1-1) are described in Appendix K. "No grazing" was analyzed in the San Juan Grazing Management EIS for allotments outside the issue area.

ALTERNATIVE A: CURRENT MANAGEMENT (NO ACTION) ALTERNATIVE

THEME

This alternative describes the current management of the resources affected by the issue questions. As with all alternatives, other resources and programs would continue to be managed as described in the continuing management guidance section of this chapter. This alternative provides a baseline for comparison of other alternatives. The management direction for this alternative was derived from existing management decisions and guidance developed in the San Juan and Chaco MFPs. Like the other alternatives, the Current Management Alternative would allow future management of the FRA to be responsive to changing regulations and policies.

1. Land Ownership Adjustments: Any adjustment in land ownership which requires a land use planning decision would be limited to those areas identified under the previous Management Framework Plans (MFPs). Specifically, 6,078 acres of private land near Navajo Reservoir would continue to remain targeted for acquisition by the BLM. In terms of land ownership adjustments, 73,223 acres (114 square miles) could be transferred out of BLM administration via exchange or through the R&PP Act. The remaining public lands within the Resource Area (approximately 1,435,000 acres) would generally be retained under public ownership with BLM administration.

TABLE 1-2: DESCRIPTION OF EACH ALTERNATIVE BY ISSUE

ISSUE	RMP ALTERNATIVES A	B	C	D
1. Land Ownership Adjustments (Acres)				
Exchange Zone	73,223	98,945	396,582	324,942
Retention Zone	1,435,227	1,409,505	1,111,868	1,183,508
Acquisition Zone	6,078	155,850	0	113,407
2. Home Use Fuel Sources (Acres open)	1,186,530	1,175,460	1,507,800	1,497,380
3. Special Management Areas (#)	20	28	12	30
4. Coal Leasing Suitability Assessment (# tracts)	39	14	17	17
5. Transportation (Acres)				
"Open"	1,466,813	1,193,147	1,465,851	1,376,011
"Limited"/"Closed"	41,637	315,303	42,599	132,439
6. Vegetative Uses (AUMs)	62,133	33,851	67,451	46,768
7. Right-of-Way Windows (#-acres)	(0)0	(5)13,314	(0)0	(4)12,600

Alternatives

Alternative A is the continuation of current management and is referred to as the "No Action" alternative.

Alternative B is the Resource Conservation Alternative which places primary emphasis on maintaining or improving important environmental values. The outdoor recreation, visual resources, wilderness, paleontology, cultural, wildlife, watershed, and other resource conservation-oriented programs are emphasized under this alternative.

Alternative C is the Resource Production Alternative. This alternative would attempt to resolve the planning issues while placing primary emphasis on making public land and resources available for use and development. The minerals, grazing, ORV/OHV, forestry, and similar production-oriented programs are emphasized under this alternative.

Alternative D attempts to resolve the planning issues by incorporating concepts proposed in both the resource conservation and resource production alternatives as well as actions intermediate between the two extremes.

2. **Home Use Fuel Sources:** The collection of dead-and-down fuelwood would be allowed in the majority of the Area. The fuelwood made available to the public would generally be a result of wildlife habitat improvement projects, rights-of-way and well pad clearings, and from chained or chemically treated areas. Greenwood fuel collection would be allowed only in specified areas on a case-by-case basis. The Farmington Resource Area would continue to manage the three existing domestic coal licenses issued to the Nageezi, Whiterock, and Pueblo Pintado/Counselor Chapter Houses. These licenses allow members of those chapters to collect federal coal for personal use. Any new request for domestic coal licenses would be considered on a case-by-case basis.

> *Greenwood fuel collection would be allowed only in specified areas.*

3. **Special Management Areas:** The FRA would continue to manage the following special management areas which have already been designated: Bisti Wilderness, De-na-zin Wilderness, Simon Canyon Recreation Area, The Hogback, Fossil Forest Research Natural Area, Angel Peak Recreation Area, Torrejon Fossil Fauna ACEC, Ah-shi-sle-pah Wilderness Study Area, and the Chaco Outlier Group.

Previous MFPs identified areas to be carried forward for further study and possible approval as ACECs. Those areas which are comprised of public lands administered only by the BLM include the following: Jones Canyon, Negro Canyon, Rattlesnake Canyon, Carracas Mesa, Red Rocks Bluff, Bisti/De-na-zin, Gobernador Knob, Salt Point, Huerfano Mesa, Mesa Quartado, Bohanon Canyon, Gobernador and Cereza Canyon, Kutz Canyon and Lybrook.

4. **Coal Leasing Suitability Assessment:** Under the current situation, small emergency leases would continue to be processed on a case-by-case basis. The 39 competitive coal tracts, identified as a result of the Chaco/San Juan MFP Update for Coal (USDI, BLM 1981b), and analyzed in the San Juan River Regional Coal Environmental Impact Statement (USDI, BLM 1984a), would be carried forward for further consideration for leasing. This includes 2,436 million tons (1,583.1 million federal tons) of coal on 170,954 acres. No new tracts would be identified.

> *All public lands in the Resource Area currently undesignated would be designated 'open'.*

5. **Transportation:** No new ORV "closed" or "limited" designations would be implemented through the RMP. All public lands in the Resource Area currently undesignated would be designated "open," with the exception of the following areas which are already classified as "closed" or "limited" on the ORV Designation Register:

"Limited"

Ah-shi-sle-pah Wilderness Study Area
Portions of the Chaco Outlier Group
Portions of Simon Canyon Recreation Area

"Closed"

Bisti Wilderness Area
De-na-zin Wilderness Area
Fossil Forest Research Natural Area
Portions of Simon Canyon Recreation Area

Out of the 1,508,450 acres of public surface within the Resource Area, 41,637 acres are either "limited" or "closed" to ORV use. Legal and physical access needs or priorities are not identified under this alternative. Easements are acquired as needed on a case-by-case basis.

> *41,637 acres are either 'limited' or 'closed' to ORV use.*

6. **Vegetative Uses:** The current level of authorized use and allotment supervision on the 613,625 acres of public lands in the issue area (the region outside that covered by the San Juan Grazing EIS) would be continued. Currently, the FRA maintains an MOU

(Memorandum of Understanding) with the Bureau of Indian Affairs (BIA) and the Navajo Tribe for certain allotments in the issue area (see Table 1-3). This MOU is being implemented and would remain so under this alternative, with the exception that the BLM would regain administrative control of day-to-day grazing management activities on allotments lying wholly or partially within the wilderness areas.

Appendix H displays the current management situation by allotment and Table 1-4 summarizes the estimated Animal Unit Months (AUMs) of allowable livestock grazing use by alternative. Table 1-3 displays estimated short- and long-term AUMs by alternative. This alternative would be used to provide baseline data for the establishment of vegetative monitoring studies.

7. **Rights-of-Way Corridors and Windows:** There would be no designation of rights-of-way corridors or windows under this alternative. New rights-of-way would continue to be processed on a case-by-case basis.

ALTERNATIVE B: RESOURCE CONSERVATION

THEME

Alternative B is the Resource Conservation Alternative, which attempts to resolve the planning issues while placing primary emphasis on maintaining or improving environmental values. The outdoor recreation, visual resources, wilderness, paleontology, cultural, wildlife, watershed, and other resource conservation-oriented programs are emphasized under this alternative. The goal of this alternative is to change present management direction so that the seven issues are resolved in a manner that places highest priority on the maintenance or improvement of environmental values. Multiple use management would continue in areas not emphasized under this alternative.

1. **Land Ownership Adjustments:** Implementing this alternative could result in the exchange or disposal of 98,945 acres (155 square miles) of public land from federal ownership over the long term, leaving approximately 1,409,500 acres retained under BLM administration. Map 1-2 depicts the retention, exchange, and acquisition zones for Alternative B, while Table 1-5 and Figure 1-2 display exchange acreages by alternative and county. Map 1-2, and the land status map in the back pocket of this document should be used together to visualize the public land pattern in these zones. With the exception of special management areas, public lands south of the land ownership adjustment line are scattered or isolated tracts and are very difficult for the FRA to manage. It is these lands that would be exchanged or disposed of. Under this alternative, priority for exchange of public lands would be for non-BLM lands within special management areas and the two acquisition zones. Approximately 54,500 acres in the outdoor recreation acquisition zone and approximately 101,350 acres in the wildlife/range/outdoor recreation acquisition zone would be targeted for acquisition.

TABLE 1-3: ESTIMATED SHORT- AND LONG-TERM AUMS FOR ALLOTMENTS BY ALTERNATIVE

Allotment Number	Management Category	Alternative A		Alternative B		Alternative C		Alternative D	
		Short-Term	Long-Term	Short-Term	Long-Term	Short-Term	Long Term	Short-Term	Long Term
6004*	C	3,759	3,759	1,814	1,814	3,759	3,759	1,814	2,787
6005	I	449	499	628	628	1,580	1,580	628	539
6007*	C	3,485	3,485	1,445	1,445	3,485	3,485	1,445	2,465
6008*	C	764	764	436	436	764	764	436	600
6009	C	237	237	116	116	237	237	116	177
6010	M	4,559	4,559	4,559	4,559	4,559	4,559	4,559	4,559
6011*	C	3,260	3,260	2,294	2,294	3,260	3,260	2,294	2,777
6012	M	1,343	1,343	1,343	1,343	1,343	1,343	1,343	1,343
6013	I	7,162	7,162	4,654	4,654	8,953	8,953	4,654	5,908
6014	I	1,270	1,270	1,084	1,084	3,405	3,405	1,084	1,177
6015	I	10,705	10,705	4,471	4,471	13,381	13,381	4,471	7,588
6022	I	180	180	139	139	225	225	139	160
6023*	C	13,601	13,601	5,783	5,783	13,601	13,601	5,783	9,692
6024*	C	4,733	4,733	1,050	1,050	4,733	4,733	1,050	2,892
6044	C	921	921	921	921	921	921	921	921
6045	C	291	291	291	291	291	291	291	291
6087	C	122	122	96	96	122	122	96	109
6088	C	58	58	58	58	58	58	58	58
6089	C	167	167	167	167	167	167	167	167
6090	C	48	48	48	48	48	48	48	48
6091	C	14	14	14	14	14	14	14	14
6092	C	50	50	50	50	50	50	50	50
6093	C	72	72	72	72	72	72	72	72
6094	C	371	371	371	371	371	371	371	371
6095	C	259	259	259	259	259	259	259	259

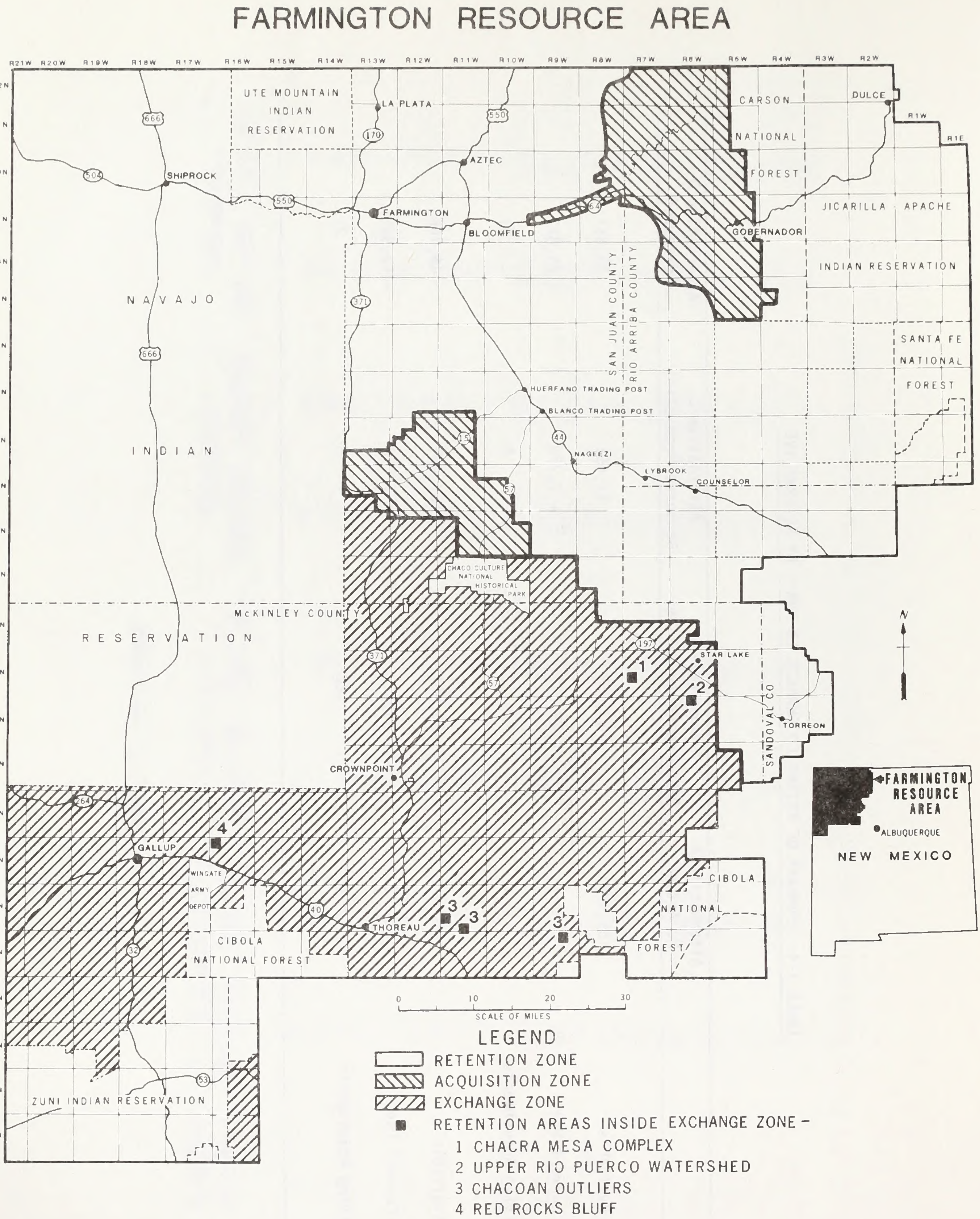
TABLE 1-3: (Continued)

Allotment Number	Management Category	Alternative A		Alternative B		Alternative C		Alternative D	
		Short-Term	Long-Term	Short-Term	Long-Term	Short-Term	Long Term	Short-Term	Long Term
6096	C	60	60	56	56	60	60	56	58
6097	C	24	24	24	24	24	24	24	24
6098	C	36	36	27	27	36	36	27	32
6099	C	17	17	17	17	17	17	17	17
6100	C	70	70	70	70	70	70	70	70
6101	C	72	72	71	71	72	72	71	72
6102	C	85	85	66	66	85	85	66	76
6103	C	24	24	24	24	24	24	24	24
6104	C	4	4	4	4	4	4	4	4
6105	C	108	108	108	108	108	108	108	108
6106	C	307	307	307	307	307	307	307	307
6107	C	216	216	187	187	216	216	187	202
6108	C	36	36	21	21	36	36	21	29
6109	C	38	38	38	38	38	38	38	38
6110	C	36	36	20	20	36	36	20	28
6111	C	108	108	108	108	108	108	108	108
6112	C	108	108	108	108	108	108	108	108
6113	C	108	108	108	108	108	108	108	108
6114	C	182	182	179	179	182	182	179	181
6115	C	40	40	40	40	40	40	40	40
6116	C	36	36	27	27	36	36	27	32
6117	C	78	78	78	78	78	78	78	78

*Allotments administered under a Memorandum of Understanding (MOU) between the BLM, BIA and the Navajo Tribe.

TABLE 1-4: SUMMARY OF ESTIMATED CHANGES IN AUM'S BY ALTERNATIVE

	Alternative A No Action	Alternative B Resource Conservation	Alternative C Resource Production	Alternative D Preferred
Short-Term AUMs Available	59,673	33,851	67,451	33,851
Net Change From Current Use	0	- 25,822	+ 7,778	- 25,822
Allotments Receiving Adjustments	0	22	5	21
Long-Term AUMs Available	59,673	33,851	67,451	46,768
Net Change From Current Use	0	- 25,822	+ 7,778	- 12,905
Allotments Receiving Adjustments	0	22	5	21



MAP 1-2

LAND OWNERSHIP ADJUSTMENTS

ALTERNATIVE B

TABLE 1-5: EXCHANGE ACREAGES BY ALTERNATIVE

	ALTERNATIVE A	B	C	D
McKinley	72,103	95,545	142,695	131,655
Rio Arriba	0	0	22,225	22,225
Sandoval	0	0	85,275	73,275
San Juan	1,120	3,400	146,387	97,787
TOTAL	73,223	98,945	396,582	324,942
Total Sq. Miles	114	155	620	508

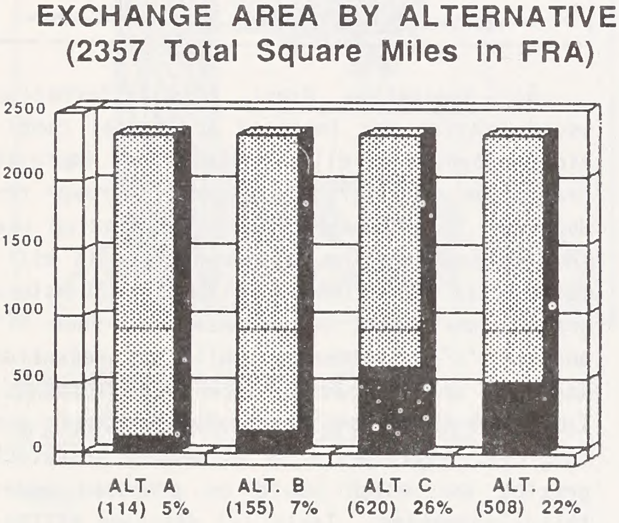


FIGURE 1-2

In the retention zone all federal lands may be consolidated through exchanges with the state of New Mexico, or for private lands as long as there is no major net reduction of federal land. Land ownership adjustments of federal lands within the retention zone will be allowed through R&PP patents if justified. Land sales within the retention zone would be allowed only for parcels listed in Appendix D.

2. **Home Use Fuel Sources:** Dead-and-down fuelwood collection would be limited to designated collection areas that do not conflict with planning criteria or the goals of special management areas. No greenwood fuel cutting areas would be designated. The FRA would continue to manage three existing domestic coal licenses (Nageezi, Whiterock, and Pueblo Pintado/Counselor), but no new licenses would be issued.

3. **Special Management Areas:** Twenty-eight Special Management Areas totaling approximately 409,000 total acres would be identified under this alternative. Table 1-6 displays the names of the SMAs, while Appendix B provides a map, a detailed description and a summary of the management goals and prescriptions for each area.

TABLE 1-6. SPECIAL MANAGEMENT AREAS
ALTERNATIVE B

Simon Canyon Recreation Area
Angel Peak Recreation Area
Bisti Wilderness
De-na-zin Wilderness
Ah-shi-sle-pah Wilderness Study Area
Farmington Lake Watershed
Carracas Mesa
Jones Canyon
Negro Canyon
Right-of-Way Windows
Chaco Outliers (9)
Red Rocks Bluff
Chacra Mesa Complex
Navajo Refugee Sites (25)
Native American Traditional Use & Sacred Areas (5)

Canada Larga Cultural Area
Betonnie Tsosie Paleontological Area
River Tracts
Kutz Canyon Paleontological Area
Torrejon Fossil Fauna ACEC
Fossil Forest Research Natural Area
The Hogback and ACEC
Reese Canyon and ACEC
Bald Eagle Wintering Area
Aztec Gilia Habitat
Upper Rio Puerco Watershed
La Plata Valley Cultural Area
Beechatuda Tongue

4. **Coal Leasing Suitability Assessment:** Under this alternative 14 competitive tracts containing 826.6 million tons (429.8 federal) of coal on 57,778 acres (15,861 federal) would be identified as acceptable for further consideration for leasing. These areas with coal development potential have been analyzed using the 20 unsuitability criteria, surface owner consultation data, and a series of multiple use screens. Refer to Ap-

pendices N and O for a detailed explanation of the federal coal lands review process and the tracts carried forward under this alternative.

5. **Transportation:** Within the Resource Area, SMAs carried forward under this alternative would be "limited" or "closed" to off-the-road vehicular travel as described in their planned actions (see Appendix B). Table 1-7 presents a summary of the SMAs which would be designated as "limited" or "closed." Out of the 1,508,450 acres of public surface within the Resource Area, 315,303 acres would be either "limited" or "closed" to off-the-road vehicular travel.

TABLE 1-7
ORV DESIGNATIONS - ALTERNATIVE B

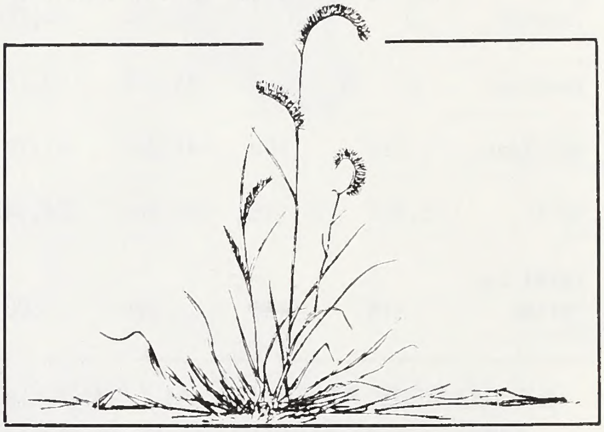
"Limited"

Portions of Simon Canyon Recreation Area and ACEC
Ah-shi-sle-pah Wilderness Study Area
Carracas Mesa
Jones Canyon
Negro Canyon
Chacra Mesa Complex
La Plata Valley
Canada Larga
Reese Canyon
Torrejon Fossil Fauna ACEC
Bald Eagle Wintering Area
Aztec Gilia Habitat
River Tracts
Upper Rio Puerco Watershed
Angel Peak Recreation Area
Farmington Lake Watershed
Navajo Refugee Sites
Chaco Outliers Group
Native American Traditional Use and Sacred Areas

"Closed"

Portions of Simon Canyon Recreation Area and ACEC
Bisti Wilderness
De-na-zin Wilderness
Fossil Forest Research Natural Area
The Hogback
Beechatuda Tongue

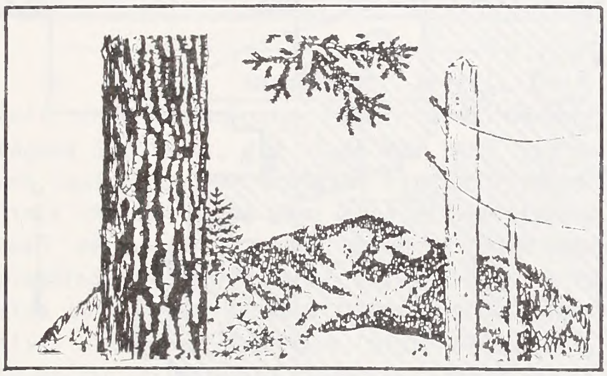
All other areas and trails would be designated "open," subject to future emergency closures to protect a sensitive resource or ensure public safety. As for easement acquisition needs, first priority would be given to obtaining legal and/or physical access into SMAs identified in Table 1-6.



6. **Vegetative Uses:** This alternative would provide for improved ecological condition, enhanced wildlife habitat, and improved protection of watershed resources through reductions in allowable livestock grazing use and improved grazing management. It is estimated that reduction in allowable livestock grazing use would be proposed for four "I" and 17 "C" allotments, while no reduction would be anticipated for the "M" allotments. Table 1-4 summarizes the estimated short- and long-term adjustments in allowable livestock grazing use which would be proposed under this alternative. Table 1-3 displays estimated short- and long-term AUMs by alternative. The actual initial adjustments would be negotiated with currently available vegetative data supplemented by results of five years of monitoring. Changes in grazing management would be implemented to resolve wildlife habitat, watershed, and ecological condition conflicts, or conflicts identified by other conservation-oriented programs. Requests for increases in allowable livestock grazing use would be considered when conservation-oriented needs are satisfied. The grazing MOU with the BIA and the Navajo Tribe would be cancelled for allotments in the retention zone and allotments lying wholly or partially within the wilderness areas. On these allotments the BLM would regain administrative control of day-to-day grazing management activities. The MOU would be contin-

ued elsewhere until the public lands are exchanged or disposed of.

7. Right-of-Way Corridors and Windows: Five right-of-way windows, totaling 13,314 acres, would be designated. The location of these windows (see Appendix B) was determined by the need to reduce resource conflicts. While certain Special Management Areas preclude the location of rights-of-way within their boundaries, the purpose of the windows would be for the placement of rights-of-way as the best use within these areas. All right-of-way applications will receive environmental review on a case-by-case basis to minimize resource conflicts.



ALTERNATIVE C: RESOURCE PRODUCTION

THEME

Alternative C is the Resource Production Alternative, which attempts to resolve the planning issues while placing primary emphasis on making public land and resources available for use and development. The minerals, grazing, ORV, forestry, and similar production-oriented programs are emphasized under this alternative. The goal of this alternative is to change management direction in the FRA so that the seven issues are resolved in a manner that generally places highest priority on the production of resources from the public lands; multiple use management would continue in areas not designated for special management attention.

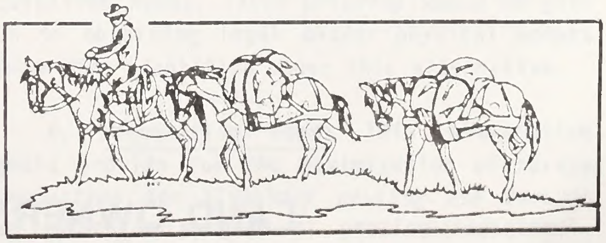
1. Land Ownership Adjustments: Implementing this alternative could result in the exchange or disposal of approximately 396,500 acres (620 square miles) of public land from federal ownership over the long term, leaving approximately 1,111,900 acres retained under BLM administration. Map 1-3 depicts the retention and exchange zones for this alternative. This map, and the land status map in the back pocket of this document should be used together to visualize the public land pattern in these zones. With the exception of congressionally legislated and designated SMAs (see Table 1-8 and Appendix B) and the coal SMA, all public lands south of the land ownership adjustment line could be utilized to acquire non-BLM lands inside the retention zone, or in acquisition areas identified by other RMPs within the state of New Mexico.

TABLE 1-8
SMAS TO BE RETAINED IN THE
EXCHANGE ZONE OF ALTERNATIVE C

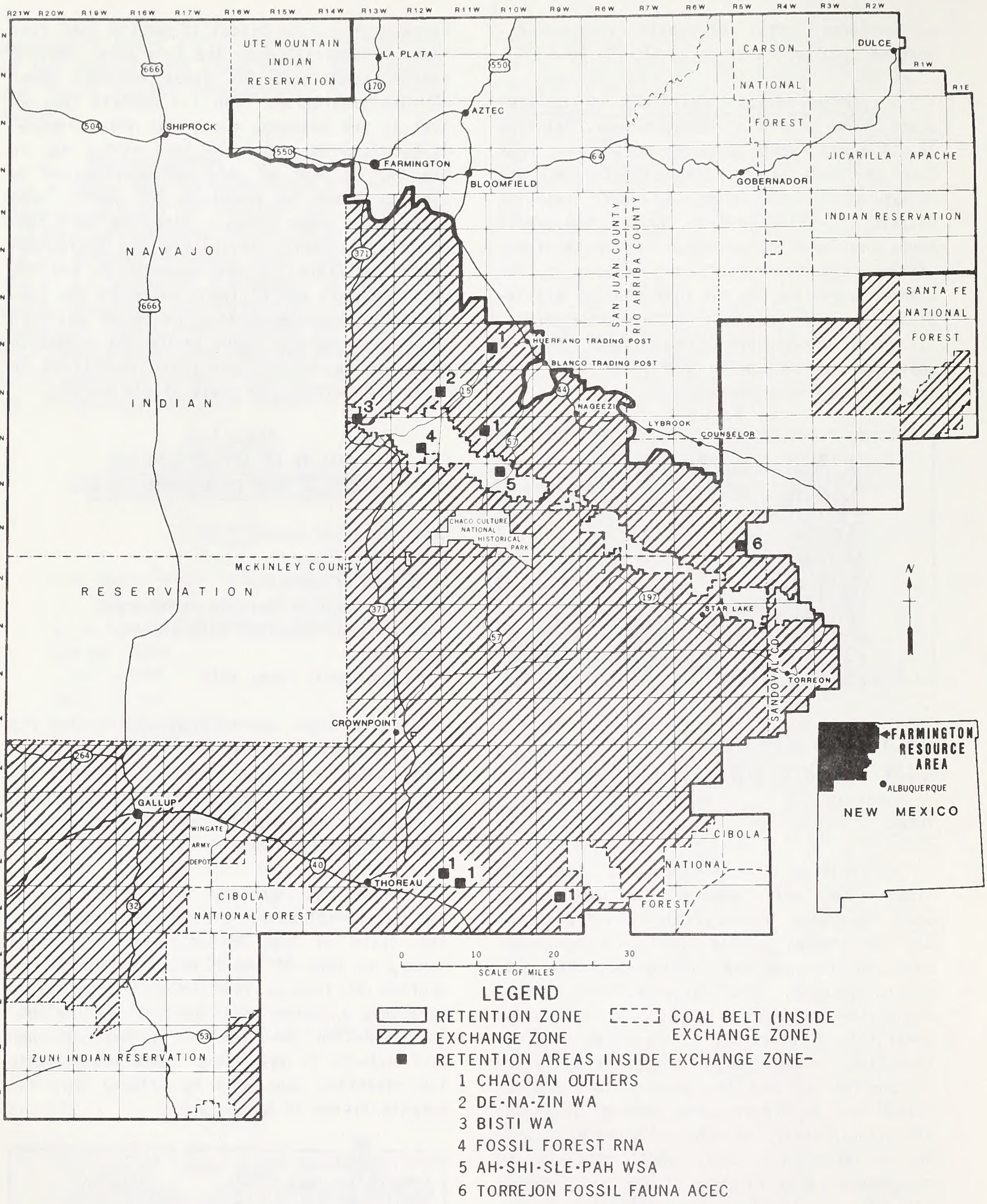
Chaco Outliers Group
Bisti Wilderness
De-na-zin Wilderness
Ah-shi-sle-pah Wilderness Study Area*
Fossil Forest Research Natural Area*
Coal Belt
Torrejon Fossil Fauna ACEC

*These two areas would be managed by the BLM until Congress examines their special management status. If that status is removed, the areas would be disposed of. If designated for special management they would be managed accordingly by the BLM.

Inside the retention zone public lands may be consolidated through exchanges with the state of New Mexico, or for private lands, as long as there is no major net reduction of federal land in that zone. Land ownership adjustments of federal lands within the retention zone will be allowed through R&PP patents if justified. Land sales within the retention zone will be allowed only for parcels listed in Appendix D.



FARMINGTON RESOURCE AREA



LEGEND

- ☐ RETENTION ZONE
- ▨ EXCHANGE ZONE
- ■ RETENTION AREAS INSIDE EXCHANGE ZONE–
  1 CHACOAN OUTLIERS
  2 DE-NA-ZIN WA
  3 BISTI WA
  4 FOSSIL FOREST RNA
  5 AH-SHI-SLE-PAH WSA
  6 TORREJON FOSSIL FAUNA ACEC
- ┌┄┐ COAL BELT (INSIDE EXCHANGE ZONE)

MAP 1-3

LAND OWNERSHIP ADJUSTMENTS

ALTERNATIVE C

2. **Home Use Fuel Sources:** The collection of dead-and-down fuelwood and greenwood would be allowed Resource Area-wide except where resource conflicts or resource degradation would occur. The program would be limited by the planning criterion that cutting cannot exceed sustainable yield. The Bureau would continue to allow the operation of the three existing domestic coal licenses, and would review and process new domestic coal license requests where possible.

> ***The collection of dead-and-down fuelwood & greenwood would be allowed Resource Area-wide.***

3. **Special Management Areas:** Under this alternative, the Dunes, Head Canyon, Laguna Seca Mesa, the Glade Run Trail System and Coal Belt SMAs would be carried forward. Since the following SMAs have either already been designated through previous land use planning or congressional action, they would also be carried forward under this alternative: the Chaco Outliers, Bisti Wilderness, De-na-zin Wilderness, Torrejon Fossil Fauna ACEC, and Simon Canyon Recreation Area and ACEC. The Ah-shi-sle-pah WSA and the Fossil Forest RNA would retain their special management status until Congress decides if they should continue to be managed as special areas.

4. **Coal Leasing Suitability Assessment:** Following application of the coal development potential screen, surface owner consultation data, unsuitability criteria and all but one (No. 12) of the multiple use screens, 17 competitive tracts containing 876.6 million tons (478.9 federal) of coal on 60,698 acres (15,861 federal) would be carried forward as acceptable for further consideration for leasing. In an effort to ensure the orderly development of coal resources along the Fruitland formation, all public surface within the Coal Belt Special Management Area (77,945 acres) and all public surface within the Chico Wash South tract would be retained under BLM administration. Once coal is developed and the surface is reclaimed on any lease, Preference Right Lease Application or competitive tract, the surface would be available for exchange or disposal. Refer to Appendices N and O for a detailed explanation of the federal coal lands review process and the tracts carried forward under this alternative.

5. **Transportation:** The entire Resource Area would be designated "open" to off-the-road vehicular travel with the following exceptions: (1) congressionally legislated areas requiring restrictions, (2) lands already designated as "closed" or "limited" on the ORV Designation Register, or (3) areas or trails subjected to future emergency closures. Table 1-9 provides a summary of the SMAs which would be designated as "limited" or "closed."

TABLE 1-9
ORV DESIGNATIONS - ALTERNATIVE C

"Limited"

Portions of Simon Canyon Recreation Area and ACEC
Ah-shi-sle-pah Wilderness Study Area
Chaco Outliers Group
Torrejon Fossil Fauna ACEC

"Closed"

Portions of Simon Canyon Recreation Area and ACEC
Bisti Wilderness
De-na-zin Wilderness
Fossil Forest Research Natural Area
The Hogback

Out of the 1,508,450 acres of public surface within the Resource Area, 42,599 acres would be either "closed" or "limited" to ORV use. Two areas would be designated for specific types of ORV use - one as a general ORV play area, the second as an area for organized competitive events. As for easement acquisition needs, first priority would be given to obtaining legal and/or physical access into SMAs identified under this alternative.

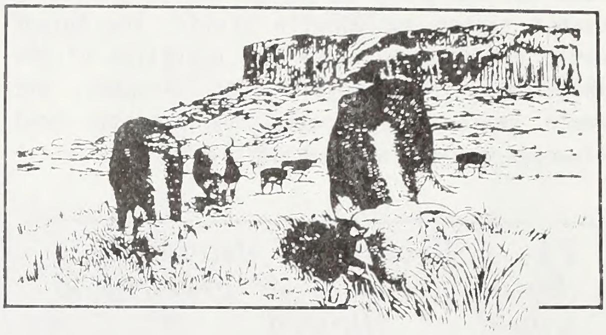
6. **Vegetative Uses:** This alternative would provide for the maximization of forage production for livestock grazing use through an intensive program of grazing management.

It is anticipated that existing levels of vegetative use on "M" and "C" category allotments would be maintained, and that use on "I" category allotments would be maintained or increased. The grazing MOU with the BIA and the Navajo Tribe would be cancelled for allotments in the retention zone and for allotments lying wholly or partially within the wilderness areas. On these allotments the BLM would regain administrative control of day-to-day grazing management activities. The MOU would be continued elsewhere until the public lands are exchanged or disposed of. Range improvement funding for allotments inside the exchange zone would be limited to those projects that can be depreciated before mining and/or disposal occurs.

Existing levels of vegetative use on 'M' and 'C' categories would be maintained.

Table 1-4 summarizes the estimated short- and long-term adjustments in allowable livestock grazing use proposed under this alternative. Table 1-3 displays estimated short- and long-term AUMs by alternative for the allotments. The determination of AUMs required for short-term reductions and AUMs available for long-term increases in livestock grazing use would be negotiated with currently available vegetative data supplemented by results of five years of monitoring. Changes in grazing management would be implemented to increase forage production and improve ecological condition. No changes in grazing management would be proposed specifically for the purpose of resolving the resource conflicts identified in Appendix I, but some improvement in these resource conflicts would be anticipated as a result of improved grazing management. Increased forage for wildlife habitat, watershed protection, or other needs identified by conservation-oriented programs would be considered only after livestock grazing use needs were met.

7. Right-of-Way Corridors and Windows: Under this alternative, no right-of-way (ROW) corridors or windows would be designated. Rights-of-way placement would be considered Resource Area-wide except where it would conflict with congressionally legislated decisions to exclude them or with SMAs carried forward under this alternative. Each action will receive environmental review on a case-by-case basis.



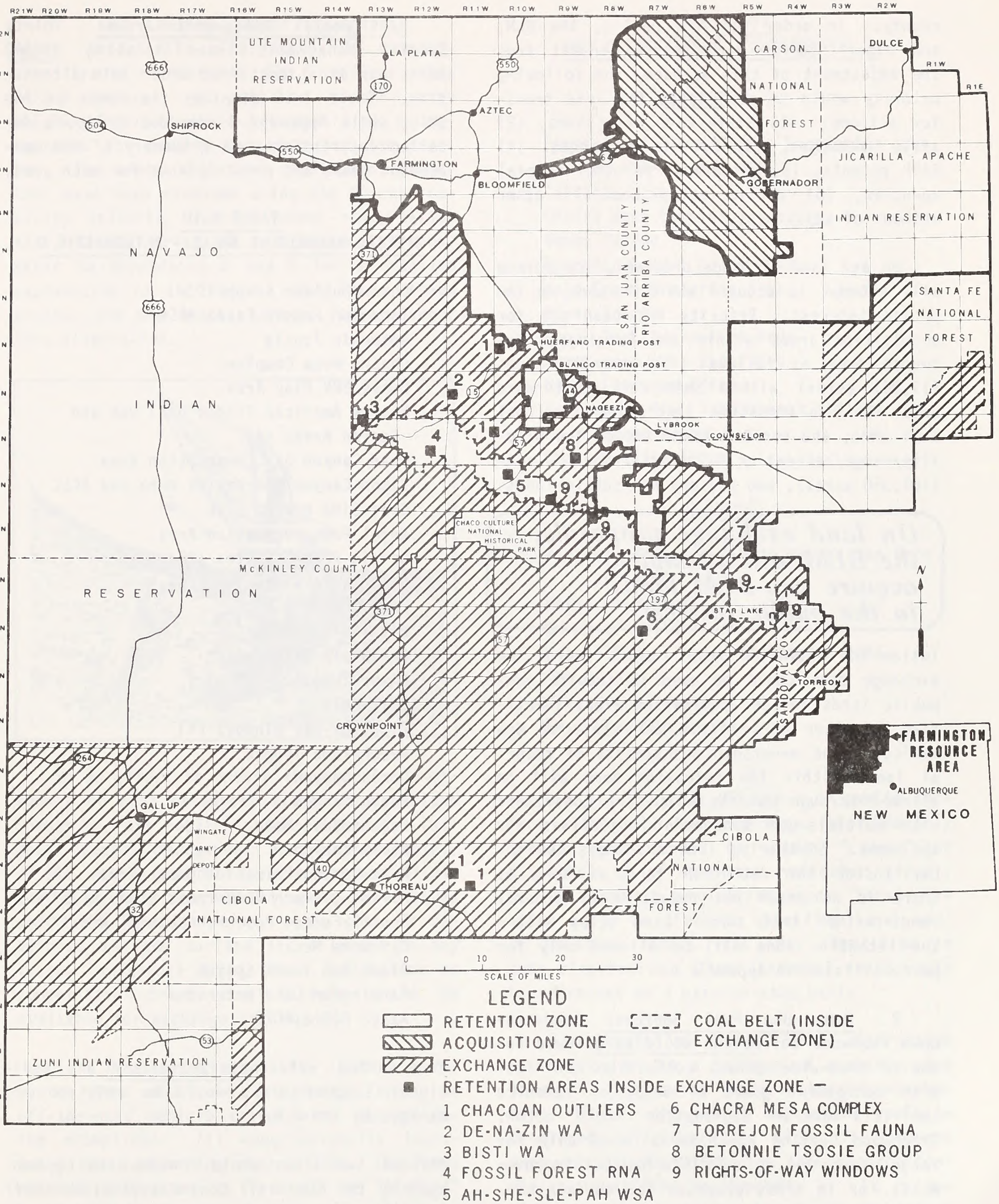
ALTERNATIVE D: PREFERRED ALTERNATIVE

THEME

The Preferred Alternative for this RMP/EIS is designed to provide balanced management direction for the FRA. The goal is to resolve the seven issues by providing for a combination of resource uses that would protect important environmental values and sensitive resources while at the same time allow development of resources which provide commercial goods and services. This alternative incorporates concepts proposed in both the resource conservation and resource production alternatives as well as actions intermediate between the two.

1. Land Ownership Adjustments: Implementing this alternative could result in the exchange or disposal of approximately 324,940 acres (508 square miles) of public lands from federal ownership over the long term, leaving approximately 1,183,500 acres retained under BLM administration. Map 1-4 depicts the retention, exchange, and acquisition zones for this alternative. This map and the land status map in the back pocket of this document should be used together to visualize the public land pattern in these zones. With the exception of the special management areas identified under this alternative, all public lands south of the land ownership adjustment line would be available for exchange or disposal. Again, refer to Table 1-5 which displays exchange acreages by alternative and

FARMINGTON RESOURCE AREA



MAP 1-4

LAND OWNERSHIP ADJUSTMENTS

ALTERNATIVE D

county. In order for the public, the BLM, and other federal agencies to benefit from the adjustment of this acreage, the following priority would be designated for land transfer actions: (1) State Lieu selections, (2) state exchanges, (3) private exchanges, (4) R&PP patents, (5) withdrawal to other federal agencies, (6) public sale, and (7) other methods of adjustment.

On any land exchange proposal, the Bureau will attempt to acquire non-BLM lands in the public interest. Priority has been set for acquisition areas within the Farmington Resource Area as follows: (1) non-BLM lands (17,963 acres) within SMAs carried forward under this alternative (excluding the Coal Belt SMA), and non-BLM lands inside the wildlife/range/recreation acquisition zone (101,350 acres), and (2) any non-public lands inside the retention zone. Lands inside the exchange zone could be used to acquire non-public lands inside acquisition areas identified in other RMPs within the state of New Mexico. Land ownership adjustments of federal lands within the retention zone will be allowed through patents which are consistent with multiple-use management objectives for the area. Similarly, land exchanges can occur inside the retention zone as long as there is no major net reduction of federal lands within that zone. Land sales within the retention zone will be allowed only for parcels listed in Appendix D.

On land exchange proposals, the BLM will attempt to acquire non-BLM lands in the public interest.

2. __Home Use Fuel Sources:__ Dead-and-down fuelwood collection would be allowed Resource Area-wide unless collection conflicts with management goals of SMAs, or resource conflicts and/or degradation would occur. Greenwood cutting would be allowed only for range, forestry, or wildlife habitat improvements, or in areas proposed for surface mining. The existing domestic coal licenses (Nageezi, Whiterock, and Pueblo Pintado/Counselor) would continue to be managed by the BLM. New domestic coal license applications would be considered on a case-by-case basis.

3. __Special Management Areas:__ Thirty Special Management Areas totaling 98,383 acres would be identified under this alternative. Table 1-10 displays the names of the SMAs, while Appendix B provides a map, a detailed description, and a summary of the management goals and prescriptions for each area.

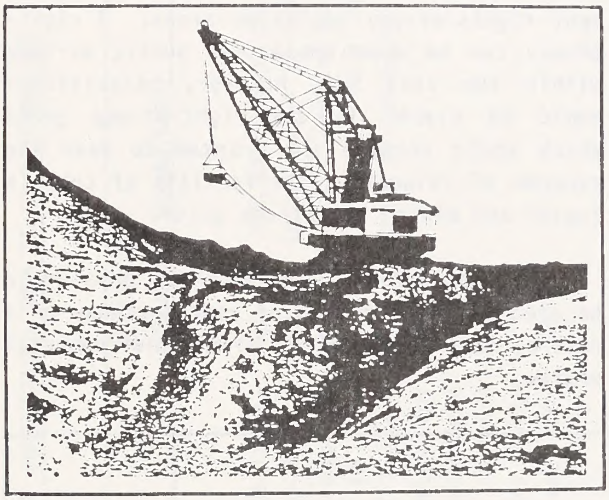
TABLE 1-10
SPECIAL MANAGEMENT AREAS - ALTERNATIVE D

Chaco Outlier Group (9)
Torrejon Fossil Fauna ACEC
Betonnie Tsosie
Chacra Mesa Complex
Dunes ORV Play Area
Native American Traditional Use and Sacred Areas (4)
Head Canyon ORV Competition Area
Simon Canyon Recreation Area and ACEC
East Side Rincon Site
Angel Peak Recreation Area
Navajo Refugee Sites (25)
Bald Eagle Wintering Area
The Hogback
Bisti Wilderness*
De-na-zin Wilderness*
River Tracts
Coal Belt
Right-of-Way Windows (4)
Beechatuda Tongue
Jones Canyon
Negro Canyon
Laguna Seca Mesa
Reese Canyon
Kutz Canyon Paleontological Area
Ah-shi-sle-pah Wilderness Study Area**
Fossil Forest Research Natural Area**
Carracas Mesa
Glade Run Trail System
Farmington Lake Watershed
Aztec Gilia ACEC

*The actual wilderness areas and any additional support areas would be retained and managed by the BLM.

**These two areas would continue to be managed by the BLM until Congress examines their special management status. If that status is removed, the area would be available for exchange or disposal. If designated by Congress for special management, they would be managed accordingly by the BLM.

4. **Coal Leasing Suitability Assessment:** Under this alternative, 17 competitive tracts containing 876.6 million tons (478.9 federal) of coal on 60,698 acres (15,861 federal) would be identified as acceptable for further consideration for leasing. The areas with coal development potential have been examined using the 20 unsuitability criteria, surface owner consultation data, and a series of multiple-use screens. Refer to Appendices N and O for a detailed explanation of the federal coal lands review process and the tracts carried forward under this alternative.



In an effort to ensure the orderly development of coal resources along the Fruitland Formation, all public surface within the Coal Belt Special Management Area (approximately 77,945 acres) and all public surface within the Chico Wash South tract would be retained under BLM administration. Once coal is developed and the surface is reclaimed on any lease, Preference Right Lease Application or competitive tract, the surface would be available for exchange or disposal.

5. **Transportation:** The entire Resource Area would be designated "open" to off-the-road vehicle travel with the following exceptions: (1) congressionally legislated areas requiring restrictions, (2) lands already designated as "closed" or "limited" on the ORV Designation Register, or (3) areas subjected to future emergency closures. Table 1-11 provides a summary of the SMAs which would be designated as "limited" or "closed".

TABLE 1-11
ORV DESIGNATIONS - ALTERNATIVE D

"Limited"

Portions of Simon Canyon Recreation Area
Ah-shi-sle-pah WSA
Carracas Mesa
Chacra Mesa Complex
Reese Canyon
Torrejon Fossil Fauna ACEC
Bald Eagle Wintering Area
River Tracts
Angel Peak Recreation Area
Farmington Lake Watershed
Navajo Refugee Sites
Native American Traditional Use and Sacred Areas
Chaco Outlier Group

"Closed"

Portions of Simon Canyon Recreation Area and ACEC
Bisti Wilderness
De-na-zin Wilderness
Fossil Forest Research Natural Area
The Hogback
Beechatuda Tongue
East Side Rincon Site

Out of the 1,508,450 acres of public surface within the Resource Area, approximately 132,439 acres would be either "closed" or "limited" to off-the-road vehicular travel. As for easement acquisition needs, first priority would be given to obtaining legal and/or physical access into SMAs identified in this alternative. Other easement needs would be addressed on a case-by-case basis.

6. **Vegetative Uses:** This alternative would provide for a balance of resource uses through a program of improved grazing management. Future changes in management would be developed in cooperation with all Resource Area specialists to resolve the resource conflicts identified in Appendix I. It is anticipated that existing levels of vegetative use on "M" category grazing allotments would be maintained and levels adjusted to protect existing resource values on "C" category allotments. Necessary actions on "I" category

allotments would be taken to attain "M" category status for those allotments. The grazing MOU with the BIA and the Navajo Tribe would be cancelled for allotments in the retention zone, and allotments lying wholly or partially within the wilderness areas. On these allotments the BLM would regain administrative control of day-to-day grazing management activities. The MOU would be continued and possibly expanded elsewhere until the public lands are exchanged or disposed of. Range improvement funding for allotments south of the retention zone would be limited to those projects that can be depreciated before mining and/or exchange or disposal of the public lands.

Estimates of the short- and long-term adjustments in allowable livestock grazing use to be proposed under this alternative are displayed in Table 1-4. The actual short- and long-term adjustments implemented would be based on a five-year program of vegetative monitoring studies. Table 1-3 displays estimated short- and long-term AUMs by alternative.

7. Right-of-Way Corridors and Windows: Four of the five right-of-way windows designated under Alternative B would be carried forward (see Appendix B). The Bisti By-pass Window, containing 714 acres, was removed from this alternative based on conflicts associated with acreage selected by the Navajo Tribe under the Navajo/Hopi Relocation Settlement Act. The remaining windows would be managed to promote the placement of rights-of-way as the best use within those areas. Conversely, some of the Special Management Areas have management actions which would preclude the location of rights-of-way within their boundaries. Those SMAs represent rights-of-way exclusion areas. A right-of-way can be approved across public surface within the coal SMA, however, stipulations would be placed in the right-of-way grant which would require the grantee to bear the expense of relocating the facility if coal is leased and mining operations occur.

The remainder of the Resource Area would be open to the location of rights-of-way on a case-by-case basis with normal environmental review.

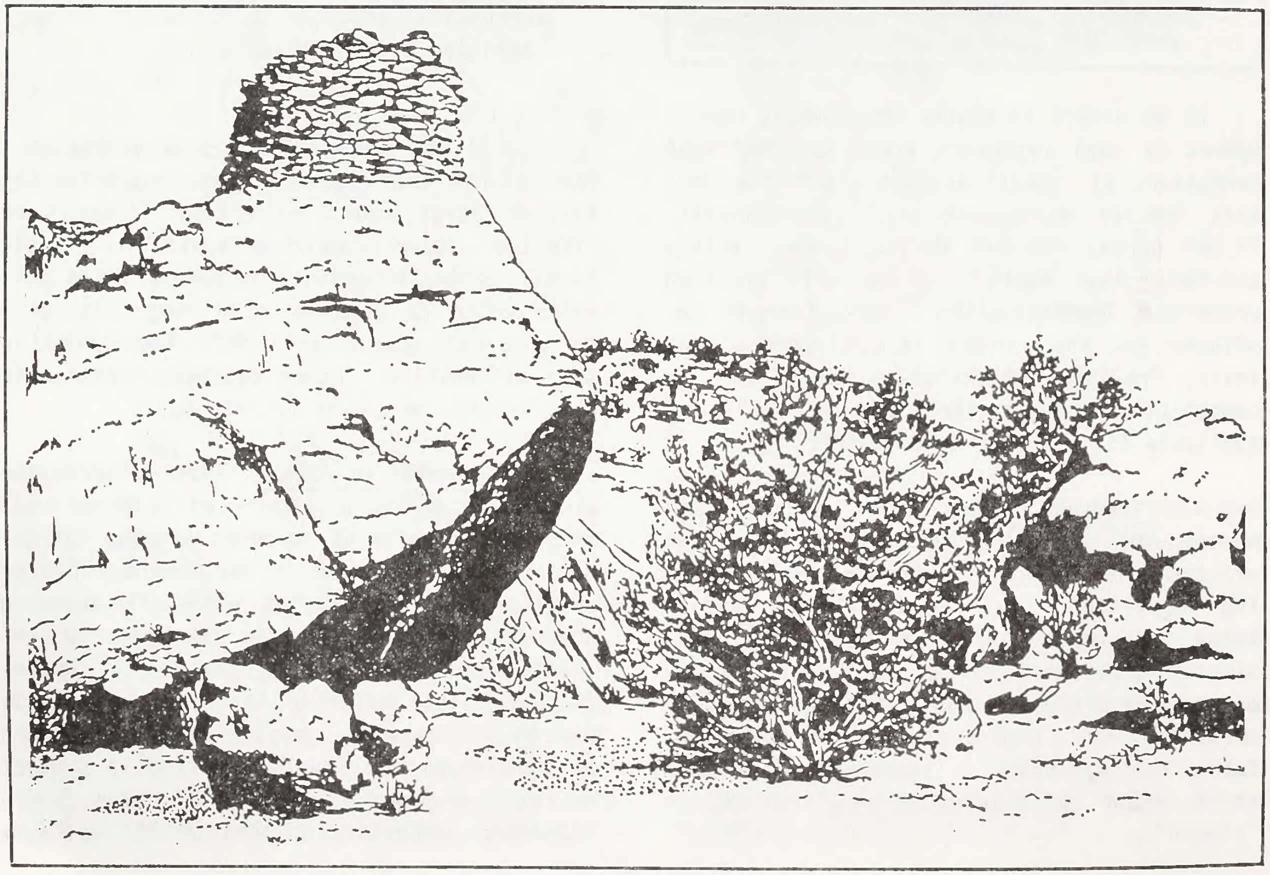


TABLE 1-12: SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
MINERALS			
The main potential long-term impact would consist of conflicts associated with the creation of up to 73,223 additional acres of split estate lands. A total of 39 competitive coal tracts would be carried forward for further consideration for leasing. Only three percent of the Resource Area would be closed to oil and gas development.	Up to 98,945 acres of split estate land, which could hinder mineral development, would be created. A total of 14 coal tracts would be brought forward for further consideration for leasing. While there would be a three percent decrease in lands available for oil and gas development, the impacts are considered insignificant.	Up to 396,800 acres of split estate lands would be created. Seventeen coal tracts would be brought forward for further consideration for leasing.	Up to 325,000 acres of split estate lands would be created. A total of 17 coal tracts would be brought forward for further consideration for leasing. Development of the Coal Belt SMA and the ROW windows would benefit the coal program.
RANGELAND			
No changes in ecological condition would be expected on a minimum of 62 percent of the allotments in the issue area. Impacts to range resources would be negative to "I" allotments, and to allotments affected by coal mining activities. Short-term negative impacts would occur as a result of the resolution of the home use fuel sources issue. The resolution of the transportation and land ownership adjustments issues could have long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue. Long-term impacts would occur as a result of the resolution of the	A reduction of 25,822 AUMs is estimated for the "I" and selected "C" category allotments. The increased vegetative production that would occur in the long term on the "I" category allotments would be reserved for improved watershed condition and enhancement of wildlife habitat. Short-term improved vigor of perferred livestock forage and long-term improvement in ecological condition would be anticipated on the "I" category allotments. If coal mining takes place, long-term impacts would occur on a maximum of ten percent of the allotments and two percent of the	An increase of 5,509 AUMs is estimated for the "I" category grazing allotments. Long-term improvement in ecological condition and increases in vegetative production would be expected on these allotments. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment issue on a maximum of 2.3 percent of the federal lands in the issue area, but they would be mitigated by reclamation. The resolution of the transportation and land ownership adjustments issues would have minor long-term negative effects, which can be mitigated in the case of the land	A long-term reduction of 15,174 AUMs is estimated for the "I" and selected "C" category grazing allotments. In the long term the reduced AUMs would be partially restored on "I" allotments. In the short term, vigor of preferred livestock forage and ecological condition would improve on the "I" allotments. In the long term, resolution of resource conflicts would be expected on the "I" allotments. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment issue on a maximum of 2.3 percent of the federal lands in the issue area, but they would be mitigated

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
coal leasing suitability assessment issue, but would mitigated by reclamation after mining is completed.	federal lands in the issue area, but they would be mitigated by reclamation. The resolution of the transportation and land ownership adjustments issues could have minor long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue.	ownership adjustments issue. Resolving the home use fuel sources issue would increase negative impacts.	by reclamation. The resolution of the fuel sources and land ownership adjustments issues would have minor long-term negative effects, which would be mitigated by proper silvicultural practices and stipulations and possible exchange agreements, respectively. Negative impacts associated with ORV designations are not considered significant overall, but could impact localized areas.
LANDS			
Land ownership adjustments could occur on approximately five percent (73,223 acres) of the total public lands in the Resource Area which would result in overall beneficial impacts to public land management. Creation of split estate lands due to adjustments could create moderate impacts on the granting of ROWs and approvals for the development of mineral resources on those lands.	A total of 98,945 acres are identified for disposal. Long-term positive impacts of the proposed acquisition, disposal, and rights-of-way designations would improve management efficiency and effectiveness. Long-term negative impacts would consist of increased conflicts resulting from the creation of additional split estate land.	396,582 acres of public lands are identified for exchange or sale. Only 5,527 acres of non-public lands are identified for high-priority acquisition. All other non-BLM lands in the retention zone would be considered for acquisition as a second priority. Long-term positive impacts of these actions would be improved management efficiency and effectiveness on consolidated lands. The long-term negative impact would be the potential increased conflicts caused by the creation of additional split estate lands.	A total of 119,313 acres are identified for acquisition while 324,942 acres are identified for disposal. Four right-of-way windows are identified. These actions will have positive effects. Long-term positive impacts of these actions would be improved management efficiency and effectiveness on consolidated lands. The long-term negative impact would be the potential increased conflicts caused by the creation of additional split estate lands.
FORESTRY			
Continuation of present low-level forest and woodland management	Short-term impacts would be a reduction in the amount of fuelwood	About 250 to 300 acres of fuelwood would be available for	Less than 20,000 acres of productive woodland and forest would

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
practices may result in continued unauthorized fuelwood cutting and possible long-term reduction in areas of woodland forest types. About 2,500 cords of fuelwood per year could be harvested on a sustained yield basis in the RA.	available to the public and a possible increase in unauthorized cutting of green trees. A potential long-term impact would be the deterioration of woodland sites due to reduced management.	harvest each year. Silvicultural treatments would be employed to maintain and enhance woodlands.	leave federal ownership. Both forest and woodland management would be improved by the initiation of silvicultural treatments.
SOILS			
Land ownership adjustments would not result in significant impacts to soils resources if soil improvement and erosion control structures are maintained. Natural erosion would continue within badlands. Coal mining would result in significant long-term disturbance to 2.4 percent of the soils in the Resource Area, but the impacts would be mitigated by reclamation efforts. Impacts to soils from off-the-road vehicular travel can be mitigated by emergency closure. Sediment yields and soil erosion would continue at the present rate or could increase on grazing lands in poor ecological condition.	Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Reductions in erosion and sediment production would be expected on 315,303 acres within SMAs. Some natural erosion would continue within badlands. Long-term impacts to about two percent of the soils in the Resource Area would occur from coal mining activities, but the impacts would eventually be mitigated by reclamation efforts. Approximately 21 percent of the public lands could receive protection from ORV impacts. Improvements in negative vegetative conditions should also improve soil conditions.	Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Increases in acreage available for the collection of fuelwood may increase impacts to the soil resource. Long-term impacts to less than one percent of the soils would occur from coal mining activities. The impacts would be mitigated by reclamation efforts. Natural erosion would continue within badlands, and would be accelerated on two SMAs designated for ORV use. Soils would receive long-term positive benefits on "I" category grazing allotments.	Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Off-the-road vehicular travel would not have long-term significant impacts. Increases in acreage available for the collection of fuelwood may increase impacts to the soil resource. Long-term impacts to less than one percent of the soils would occur from coal mining activities. The impacts would be mitigated by reclamation efforts. Reductions in erosion and sediment production would be expected on 132,439 acres within SMAs. Natural erosion would continue within badlands. Long-term decreases in erosion and sediment production would be expected on the "I" category grazing allotments. Short-term increases in erosion and sediment

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
			production would occur on soils within the Right-of-Way Windows SMA.
HYDROLOGY			
Localized long-term impacts to water resources could occur on lands where off-the-road vehicular travel is not restricted. Peak runoff rates would remain high and sediment and salt yields would increase under the current levels of grazing management, resulting in long-term significant impacts.	Improvements in vegetative conditions would result in improvements to water resources. Implementation of habitat management plans on acquired riparian tracts would benefit water resources. Impacts of fuelwood collection would be minimized by designating fuelwood collection areas. ORV "closed" and "limited" designations for approximately 21 percent of the Resource Area may result in slightly decreased sediment and salt yields and runoff rates. Impacts of coal mining would affect less than one percent of the federal surface.	Land ownership adjustments would not result in significant impacts to water resources. Short-term impacts would occur as a result of the fuelwood program. However, watershed improvement would occur in the long term due to rehabilitative measures. Negative impacts from off-the-road vehicular travel on much of the FRA would result in long-term localized increases in sediment and salt yields as well as runoff velocities and volumes. Impacts of coal mining to water resources would affect less than one percent of the federal surface. Runoff would decrease on grazing lands where ecological condition improves. Peak runoff rates would remain high and sediment and salt yields would increase on grazing lands in poor ecological condition.	Land ownership adjustments would not result in adverse impacts to water resources. Implementation of habitat management plans on acquired riparian tracts would benefit water resources. Impacts from fuelwood collection would be mitigated by rehabilitation measures. While the designation of approximately nine percent of the Resource Area as "limited" or "closed" to off-the-road vehicular travel would benefit water resources, designation of the remainder of the public lands within the FRA as "open" to off-the-road vehicular travel could result in increases in peak runoff rates and sediment and salt discharges in localized areas. Impacts of coal mining to water resources would affect less than one percent of the federal surface. Runoff would decrease on grazing lands where ecological condition improves. Peak runoff rates would remain high and sediment and salt yields would in-

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
			crease on grazing lands in poor ecological condition.
AIR QUALITY			
There is no overwhelming impact to air quality as a result of current management practices. However, the cumulative effect from emissions is a concern.	Some improvement in air quality may be expected above that described in Alternative A, however, it is not expected to change substantially.	A reduction in air quality may result due to proposed actions under this alternative. Impacts would be slightly greater than in Alternative A.	Resolution of issues proposed under this alternative are not expected to cause significant impacts to air quality. It is probable that localized areas may suffer short-term degradation of existing air quality due to the cumulative effects of emissions.
SCENIC QUALITY			
There may be a trend of visual resource degradation commensurate with the level of natural resource development, but mitigative measures would be used to reduce negative impacts. The majority of public lands have incurred moderate to high long-term visual contrasts in the characteristic landscape which has resulted in decreased scenic quality in the FRA.	Protection of SMAs and other areas that exhibit high scenic quality and high visual sensitivity would ensure a sample of quality visual resource opportunities in the Resource Area. This would produce positive benefits for scenic quality.	A trend of visual resource degradation commensurate with the level of natural resource development will likely occur with gradual deterioration of scenic quality on the majority of public lands due to visual contrasts in the characteristic landscape.	The designation of additional SMAs that prescribe VRM Class I or II management objectives would enhance and protect a sample of areas that exhibit high scenic quality and high visual sensitivity.
WILDLIFE			
Continuation of present management will not result in short-term changes in wildlife habitat or populations. BLM will continue to meet its legal respon-	A total of 98,948 acres of low-priority wildlife habitat would be sold or exchanged while 101,350 acres of high-priority habitat are identified for acqui-	Up to 396,582 acres of wildlife habitat would be removed from federal ownership. Only 20,369 acres are considered moderate to high priority big game habitat.	Up to 324,000 acres of wildlife habitat would be removed from federal ownership. Approximately 22,200 acres in difficult to manage tracts of high-value big

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
sibilities under the Endangered Species Act. A possible long-term negative impact of this alternative could be the continued decline of candidate or sensitive plant species, due to a lack of special management for these species.	sition. Off-the-road vehicle travel will be limited or excluded from 27,490 acres of threatened or endangered species habitat, which will result in beneficial effects to these species.	Habitat for sensitive plant species would not be managed other than by case-by-case consideration of potential disturbing activities. Overall impacts to the wildlife program would be slight, as existing policy and habitat management plans would remain in effect. A lack of positive management for rare plants could result in long-term negative impacts to these species.	game habitat are identified for disposal while 101,350 acres of habitat are identified for acquisition. Important bald eagle winter roosts would be protected. A sensitive plant HMP would be developed for the Resource Area. A total of 27,490 acres of threatened or endangered species habitat would have off-the-road vehicular travel limitations. These actions should improve wildlife resources in the FRA.
WILDERNESS			
The current management situation of the SMAs results in positive, short- and long-term benefits to the Wilderness Areas. Adjacent leasing and development of surface coal is projected to have potential negative, short- and long-term impacts to wilderness characteristics.	Resolution of the lands and SMA issues would result in positive short- and long-term effects on wilderness resources. The coal issue may result in negative, short- and long-term effects if tracts are leased adjacent or close to wilderness lands.	The effects of the lands issue could be negative, short- and long-term. The coal issue could cause negative, short- and probably long-term impacts if leases are issued adjacent or close to wilderness resources.	There are positive, short- and long-term effects for wilderness resources under the lands issue. The coal issue could pose adverse effects to wilderness resources depending on which tracts are eventually leased and developed.
CULTURAL RESOURCES			
Under this alternative, impacts to cultural resources are mixed. Positive effects will result from Chacoan Outlier management. Cultural resources could also be positively affected by acquisition of significant sites on Mid-	This alternative would have a long-term, positive effect on cultural resources. Protection and management of significant cultural resource sites would be more balanced with a variety of prehistoric and historic occupa-	Under this alternative, impacts to cultural resources are mixed. Positive effects will result from Chaco Outlier management. Cultural resources could also be positively affected by acquisition of significant sites through	Effects on cultural resources would be long-term and positive. Protection and management of significant cultural resource sites would be more balanced with prehistoric and historic occupations represented in the management

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
dle Mesa. On the other hand, negative impacts are occurring as a result of unlimited and uncontrolled access associated with development and off-the-road vehicular travel.	tions represented in the special management spectrum. The designations to close or limit off-the-road vehicle use results in beneficial effects to specific areas with high cultural resource values. Potential adverse impacts could occur on a site-specific basis in "open" areas if off-the-road vehicular travel results in damage to sites.	land exchanges. Moderate to severe impacts to cultural resource sites could increase with development and ORV use.	spectrum. Not carrying forward the La Plata Valley SMA could result in negative impacts to resources; however, two Chaco outliers and the East Side Rincon Site, located in this valley, would be protected through SMA designation. Exchange or sale of the Canada Larga area will transfer an area of high site density out of BLM administration and control. Limiting or closing SMAs to ORV use results in beneficial effects to specific areas with high cultural resource values. Potential adverse impacts could occur on a site-specific basis in "open" areas if off-the-road vehicular travel results in damage to sites or structures.
PALEONTOLOGY			
Of the issues identified, SMAs which enhance paleontological research have the greatest positive impact on paleo resources.	Of the issues identified, SMAs which protect important paleontological type localities would result in the greatest positive impact on paleo resources. None of the other issues would have a significant effect.	The lands issue has the potential for a negative impact to paleo resources. Of the other issues identified, the lack of SMAs which protect paleo values would be a negative impact.	Of the issues identified, SMAs which protect important paleontological type localities would result in the greatest positive impact to paleo resources.
OUTDOOR RECREATION			
Selection of Alternative A would	Selection of Alternative B would	Selection of Alternative C would	Selection of Alternative D would

TABLE 1-12 (Continued): SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

ALTERNATIVE A (Current Management/No Action)	ALTERNATIVE B (Resource Conservation)	ALTERNATIVE C (Resource Production)	ALTERNATIVE D (Preferred)
have adverse impacts on outdoor recreation resources. Short- and long-term negative impacts are readily observable on non-motorized types of recreation and opportunities relying on a predominantly natural environment.	result in overall positive effects on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Acquisition of the lands around the Wilderness Areas, the WSA and the Fossil Forest would improve overall recreation opportunities.	carry forth overall adverse impacts on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Short- and long-term positive effects would result in the identification of two SMAs and a trail system managed for vehicular use.	result in overall positive effects on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Short- and long-term benefits would result by designating two off-the-road motorized vehicle areas and a trail system as well as designating other SMAs.
SOCIAL AND ECONOMIC CONDITIONS			
As a consequence of land ownership adjustments, short-term economic impacts will result from reduced tax revenues but not at significant levels. Other issues are not expected to have significant social or economic short-term or long-term impacts.	Although almost every issue would generate some social and economic consequences under this alternative, none of the economic consequences would be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability and vegetative uses issues have the potential of arousing social concerns among the Navajo people. The consequences of vegetative use adjustments could result in rather severe short-term social concerns that would become less severe with time but may last for years.	Although nearly every issue would have some social and economic consequences, none of the economic consequences would be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability and perhaps SMA issues have the potential for arousing social concerns among the Navajo people.	Although nearly every issue would have some social and economic consequences, none of the economic consequences are believed to be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability, vegetative uses, and perhaps SMA issues have the potential of arousing social concerns among the Navajo people.

Affected Environment

Chapter 2

CHAPTER 2

AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes those physical, biological, social, and economic characteristics of the Farmington Resource Area which affect or are affected by the resolution of the seven issues identified in Chapter 1. Much of the information in this chapter summarizes more detailed material contained in the Farmington Resource Area Management Situation Analysis (MSA), available for review at the Farmington Resource Area Office. The Existing Management Situation and the Resource Area Profile sections of the MSA are in-depth discussions of the environment in the Farmington Resource Area.

TOPOGRAPHY

Elevations in the Farmington resource planning area range from approximately 4800 feet where the San Juan River leaves New Mexico to approximately 9400 feet in the Chuska Mountains near Washington Pass and 8800 feet along the eastern boundary of the Jicarilla Reservation. Elevations in the Resource Area on surface managed by the BLM range from 5000 feet near Waterflow to 8200 feet near Ambrosia Lake, N.M. Topographic expression is varied, ranging from perhaps 50 to 100 feet per mile over most of the Area and exceeding 1000 feet per mile along steep canyons and mesas, mountain ranges, and such points of interest as Shiprock, Angel Peak, and Hogback. These extreme changes in topography, as well as smaller, more localized examples such as the Bisti Wilderness, provide most of the unusual scenery within the Resource Area.

Extreme topographic relief imposes limitations on certain activities. Steep cliffs may act as natural "fences" for livestock; grazing allotment boundaries often reflect this fact. Again certain rights-of-way, such as roads, must follow longer routes rather than contend with extreme grades and/or costly earthwork involved in a more direct route. Development of other resources may also be impeded.

CLIMATE

The Farmington Resource Area has an arid to semi-arid continental climate with varied temperatures. Summer daytime temperatures are usually 80 to 95 degrees F., sometimes rising to about 100 degrees F. Winter daytime temperatures are usually 20 to 30 degrees F. with occasional below zero degrees F. temperatures. Generally, May through September is frost-free.

The major periods of precipitation occur from July through September in the form of thunderstorms which are scattered and localized in occurrence and are of variable intensity. The annual average precipitation rate for most of the Resource Area is below 10 inches. Most of the precipitation occurs in higher elevations. Flash flooding is common during and after heavy thunderstorms.

Prevailing winds are normally 5 to 15 miles per hour. High-intensity winds occur during March and April with recorded speeds of 50 to 60 miles per hour. Terrain plays an important role in determining surface wind direction and speed.

MINERALS

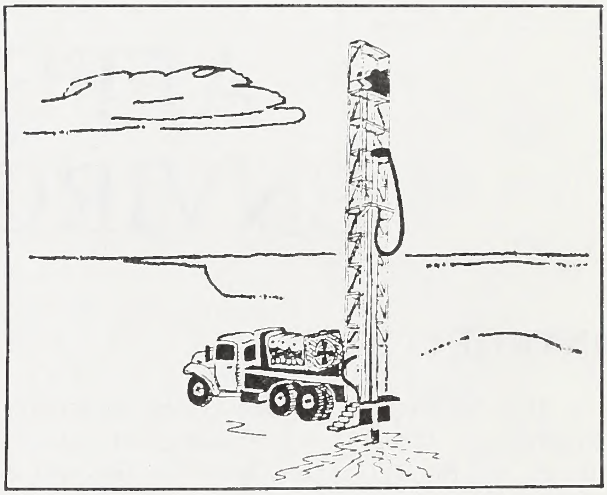
The Farmington Resource Area is situated almost entirely within the San Juan structural basin. With few exceptions, notably the Mount Taylor volcanic field in southeastern McKinley County and volcanic necks such as Shiprock, the rocks underlying the Area are sedimentary. Regional geology is summarized in the San Juan Planning Unit Resource Analysis, Step 2 (USDI, BLM 1979a).

MINERAL RESOURCES

There are five mineral activities within the Farmington Resource Area (FRA) that require continuous management. These consist of a large oil and gas program; a coal program; sales of common variety materials (i.e. sand and gravel, fill, red dog, etc.); locatable minerals; and inspection and enforcement responsibilities for all minerals on Indian lands. These programs will remain a continuing high priority responsibility for the Resource Area.

OIL AND GAS

The Farmington BLM administers Federal and Indian oil and gas leases in San Juan, Rio Arriba, and McKinley Counties in New Mexico, as well as leases in Utah and Arizona which are within the Navajo Reservation. As of October 1986 there were 2,228 producing federal oil and/or gas leases in the Resource Area on approximately 1.625 million acres and 2,849 non-producing federal leases on 3.482 million acres. In addition, there were 557 producing Indian leases on .56 million acres and 285 non-producing Indian leases on .29 million acres in New Mexico, Arizona, and Utah. Approximately 750 applications for permit to drill (APDs) were received in fiscal year 1985. This number will probably decrease slightly in the near future due to depressed world oil prices.



Almost 20,000 oil and gas wells are administered by the Resource Area. The FRA is responsible for processing APDs; pre-drill inspection of proposed drill sites; cultural and threatened or endangered species clearances; compliance inspection and enforcement for lease terms and conditions, safety, production verification and site maintenance; and abandonment inspections of drilling locations. Drilling proposals are reviewed for drainage, spacing and unit or communitization recommendations. Records are maintained for all leases for which the FRA has responsibility. They are continually updated to show status (active, inactive, producing, non-producing, etc.), changes in operators, assignments of lease rights and so on.

Oil and gas production is from 99 designated oil pools, 92 designated gas pools, 7 associated pools, and a number of undesignated (wildcat) wells. Petroleum is produced from rock layers ranging in age from 60 to 300 million years old (Tertiary to Pennsylvania systems). However, Cretaceous rocks 65 to 130 million years old account for the overwhelming majority (approximately 99 percent) of production.

Average monthly production of oil amounts to 506,421 bbl/mo (barrels per month) from federal leases and 150,422 bbl/mo from Indian leases. Monthly gas production averages 32,823,987 mcf/mo (thousand cubic feet per month) from federal leases and 3,613,787 mcf/mo from Indian leases.

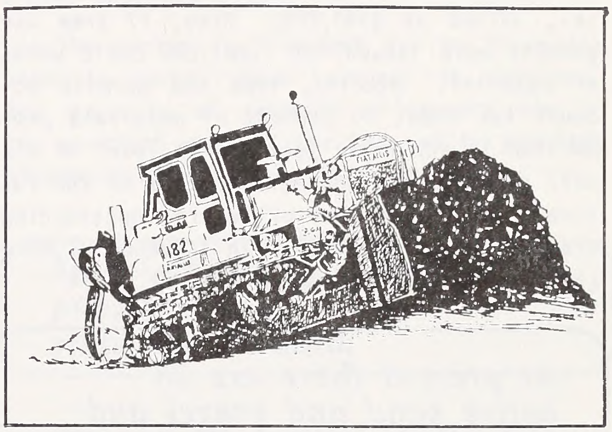
Known Geologic Structure (KGS) determinations and establishment of units and communitization agreements within the FRA are done by the District Office.

COAL

The Resource Area contains more than 170 billion tons of Cretaceous coals concentrated in three major stratigraphic intervals: the Fruitland Formation; the Mesaverde Group, which contains the upper and lower Menefee Formation coals; and the Crevasse Canyon Formation, which contains the Dilco and Gibson coal members. The Fruitland Formation, largest of the three, contains 3.8 billion tons of potentially strippable coal (annual resources report, NM State Energy and Minerals Dept. 1985). Heating value ranges between 8,000 and 12,000 BTU/lb. as received in the southern basin coals, somewhat less in the north. Ash content is lower in the southern coals, ranging from 5 to 15 percent, compared to 10% to 35% ash in the northern coals. Sulfur is low in all San Juan Basin coals, ranging from about .3 to 1.5 percent and averaging .6 to .7 percent.

There are presently 21 coal leases in the Resource Area which are administered by BLM. Three are Indian leases on the Navajo Reservation, and the rest are on federal or split estate surface. Three large mines - San Juan, Navajo, and McKinley - produced approximately 19 million tons of coal in 1986. The Burnham Mine is essentially in a standby status for lack of a market. In contrast, the La Plata Mine and Sunbelt's De-na-zin leases are expected to begin producing in the near future. The future of the remaining leases is less certain, although two old inactive underground mines may be abandoned in the near future. In addition, an exchange of federal and private coal near the Lee Ranch Mine is expected to be completed in the near future.

In addition to coal leases, there are currently 26 Preference Right Lease Applications (PRLAs) in the area. These PRLAs must eventually be processed and the applications approved or denied according to criteria established by the Mineral Leasing Act of 1920, as amended. If approved, the areas will become leases, except in wilderness areas.



Thirty-nine competitive coal leasing tracts have been delineated within the area. These tracts are discussed in the San Juan River Regional Coal EIS (USDI, BLM 1984a).

Navajo allottees in the area have historically used coal from surface exposures as fuel for cooking and heating during the winter. There are now three domestic-use mining licenses in the area and one more pending.

The La Plata Mine began production in Fiscal Year (FY) 86 and will average 1.5 million tons per year. With La Plata Mine production and production from the Burnham Mine, if it locates a market, cumulative production from all mines will continue to grow to more than 20 million tons per year.

The FRA is responsible for inspection and enforcement on all coal leases to ensure compliance with lease terms and conditions and stipulations on exploration. In addition to surface protection, inspections are intended to ensure maximum economic recovery (MER) and conformance of the operation with an approved mining or exploration plan. Finally, the FRA is responsible for product verification, i.e. independently auditing mine production reports to ensure fair royalty reporting to the federal government and the Navajo Tribe.

SALEABLE MINERALS

Saleable minerals include such common variety materials as sand and gravel, rock and stone, and fill material. At present, there are 28 active sand and gravel and fill contracts and two scoria contracts. Five more pits are pending. In FY 86, 23 sales were issued for 706,000 cubic yards of material, valued at $181,000. Also, 17 free use permits were issued for 1,487,000 cubic yards of material. Usually, free use permits account for about 90 percent of materials production in any given year. This level of use will probably continue or increase in the future. The resolution of several outstanding trespass cases may result in issuance of more contracts in the future.

> ***At present there are 28 active sand and gravel and fill contracts and two scoria contracts.***

A more complete assessment of activity and potential for all minerals is available in the Farmington Resource Area Mineral Resource Inventory.

Although BLM has oversight responsibility for all Indian minerals operations, the tribes have not informed the FRA of internal common variety material (e.g. sand and gravel) operations. Hence, the BLM has no record of such operations and no workload from that source.

LOCATABLE MINERALS

The primary locatable mineral in the Resource Area is uranium, which is found in the southern portion of the area (Grants uranium region) around Ambrosia Lake and Church Rock in the Jurassic Morrison Formation and associated rocks. A few claims have been staked in the northern part of the Resource Area for gold and sand and gravel (pre-1955 claims) but these claims have little, if any, impact on this program.

The Grants uranium region has produced more uranium than any other area in the world. At present, more than 40 percent of domestic reserves in the $50/lb. and under category are found there. The 1980s have been a period of steady decline in uranium demand and all but one mine has ceased operation; however, there are a number of active in-situ leach operations. This steady decline is due to several factors, the two most damaging being stiff competition from foreign uranium fields and a virtual cessation in new nuclear power plant construction in this country. Current stockpiles of processed ore are adequate to satisfy existing contracts for the foreseeable future.

The Resource Area's responsibility in this program consists of completing validity examinations for patent applications or Bureau actions and review and inspection of notices and plans filed under the 43 CFR 3809 regulations for surface protection. The current workload from this program is small, although some validity examinations may be needed from time to time for Bureau actions such as surface conveyance in sales or exchanges. Although the uranium industry is depressed, companies continue to file annual assessment work and maintain mining claims in good standing.

VEGETATION

Vegetation in the Farmington Resource Area is classified within four Major Land Resource Areas (MLRAs) as described by the United States Department of Agriculture Soil Conservation Service (1982). The four MRLAs are the New Mexico and Arizona Plateaus and Mesas, the San Juan River Valley Mesas and Plateaus, the Arizona and New Mexico Mountains, and the Southern Rocky Mountains. The majority of the Farmington Resource Area is located within the New Mexico and Arizona Plateaus and Mesas and the San Juan River Valley Mesas and Plateaus MLRAs.

The New Mexico and Arizona Plateaus and Mesas MLRA is located in the eastern and southern portions of the Farmington Resource Area. In the eastern portion this MLRA is characterized by canyons and mesas. The canyons are dominated by greasewood (chico) and big sagebrush with western wheatgrass, galleta, bottlebrush squirreltail, Indian ricegrass, blue grama, and alkali sacaton understory. The rocky side slopes are characteristically covered by one-seed juniper, pinyon pine, and other shrubs with very little herbaceous understory. The mesas contain mostly big sagebrush with blue grama, galleta, and bottlebrush squirreltail understory.

The southern portion of the New Mexico and Arizona Plateaus and Mesas MLRA is primarily grassland. The major grasses are blue grama, galleta, and drop-seeds. Broom snakeweed occurs in varying amounts in most areas. One-seed juniper is scattered on the ridges and rocky areas.

The San Juan River Valley, Mesas and Plateaus MLRA is located in the center of the Farmington Resource Area. Big sagebrush dominates the eastern portion of this MLRA. Understory species are blue grama, galleta, and Indian ricegrass. The western portion of this MLRA is grassland dominated by blue grama, galleta, Indian ricegrass, and drop-seeds. Associated shrubs include snakeweed and four-wing saltbush.

The other two MLRAs, the Arizona and New Mexico Mountains and the Southern Rocky Mountains, occur on small areas of the Farmington Resource Area. These MLRAs are primarily transitional areas to the MLRAs discussed above.

LIVESTOCK GRAZING

OPERATIONS

There are 375 individual livestock operators licensed to graze livestock on 246 allotments within the Farmington Resource Area. Of the 246 allotments, 146 are administered under Section 3 of the Taylor Grazing Act and 100 are administered under Section 15 of the Act, with 316 and 59 individual operators, respectively. These figures include two leases which comprise the allotments covered by the Memorandum of Understanding between the BLM, BIA, and the Navajo Tribe. Leases for individual users are issued by the BIA.

Most allotments contain a combination of public, private, and state-leased land. The private and state-leased lands are grazed in conjunction with the public lands.

PERIOD OF USE

The period of livestock use on these allotments varies from seasonal to yearlong. The majority of seasonal allotments are in the northern half of the FRA, while yearlong allotments dominate the southern half.

Most allotments contain public, private, and state-leased land.

Most of the seasonal operators graze livestock on public lands from November until May and move to summer pasture in Colorado, primarily on the San Juan National Forest. A few of the seasonal-use operators graze public lands in the summer and move to private irrigated lands in the winter to graze crop residue.

KIND OF LIVESTOCK AND TYPE OF OPERATION

Cattle, horses, sheep, and goats are authorized to graze public lands in the Farmington Resource Area. The majority of ranchers have a cow-calf operation, with calves usually shipped in October and November. Some replacement heifers are normally held. Depending on market conditions, some cow-calf operators may hold the calves over the winter and market them as yearlings. The herd size for cow-calf operations varies from approximately 1,000 on the largest allotment to four on the smallest. Horses are permitted and used primarily in support of the cowcalf ranch operations.

There are six commercial sheep operators in the Area. Flock size ranges from the largest of 2,200 to the smallest of 200. Approximately 185 Navajos graze sheep and goats on a free use basis with flocks of 100 animals or less, in accordance with a Special

Rule approved by the Secretary of the Interior on April 15, 1954.

FORAGE DEMAND

The demand for forage on the public lands in the Farmington Resource Area has remained stable for the past 15 years and is expected to continue in the future. The smaller operators, with less than 100 cattle, are gradually leaving the business. Most of the smaller operations are being consolidated into existing larger operations.

PROBLEM AREAS

Major problems affecting livestock grazing and management in the Farmington Resource Area are ranked in order of importance as follows:

1. Excessive utilization of key forage species.
2. Scattered land ownership patterns, mainly in the southern half of the Resource Area.
3. Energy development.
4. Maintenance of range improvements.
5. Unauthorized livestock.
6. Improper season of use.
7. Distribution of livestock.

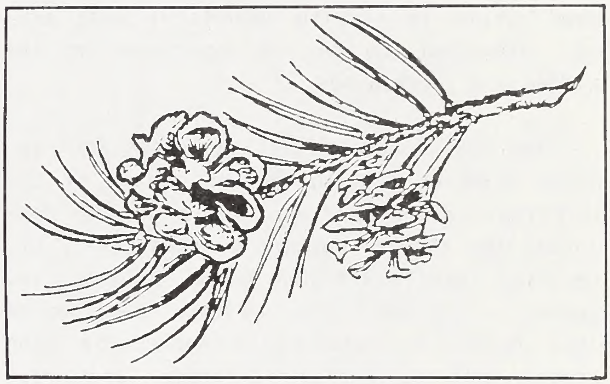
INVENTORIES

A rangeland inventory of 926,909 acres was completed in 1978 for the area covered by the San Juan Grazing Management Environmental Impact Statement (USDI, BLM 1980). This inventory provided data on species composition, production, cover, range condition by vegetative type, existing range improvements, and suitability for livestock grazing.

The data from the San Juan Grazing Management Environmental Impact Statement (EIS) inventory were compiled and analyzed. The final EIS was published in 1980. Information on 138 Section 3 allotments can be found in that document.

A rangeland inventory of approximately 468,000 acres was initiated in 1984 for the public lands not included in the San Juan Grazing Management EIS. This inventory provides data on range sites, condition, production, and apparent trend for six Section 3 allotments and 41 Section 15 allotments.

The inventory plan adopted for this effort included inventory on about 206,000 acres of Section 3 public lands and approximately 262,000 acres of Section 15 public lands. Section 15 allotments that included isolated, small tracts of public lands were not inventoried because of funding limitations and because the possibility of changes in allotment categorization is negligible.



LANDS

The Farmington Resource Area administers 1,508,450 acres of public surface estate. These lands are fairly well consolidated in San Juan County, the western part of Rio Arriba County, and northwestern Sandoval County. In McKinley County and in the Lindrith area of Rio Arriba County, the public lands are scattered and intermingled with a variety of other ownerships.

Forest Service lands within the planning area boundary are located in the northwest corner of Rio Arriba County and along the southern boundary of McKinley County. The lands in Rio Arriba County consist of the extreme northwest corner of the Santa Fe National Forest and the western portion of the Carson National Forest, known as the Jicarilla Ranger District. In McKinley County the lands are part of the Cibola National Forest. There are a number of small consolidated parcels of state lands in the coal-rich central region of the Resource Area. Throughout the rest of the Resource Area, state lands consist of isolated sections and smaller tracts. Private ownership is concentrated in the Lindrith area and along the San Juan, La Plata, and Animas River valleys. The largest blocks of private lands in the southern portion of the Resource Area lie in the eastern one-third of McKinley County. Other concentrations occur around the city of Gallup and in south-central McKinley County in the Thoreau area along Interstate Highway 40.

Approximately 75 percent of the Zuni Reservation, all of the Jicarilla Reservation, a small portion of the Ute Mountain Reservation, and approximately 80 percent of the Navajo Reservation within the state of New Mexico are within the planning area. Off-reservation Navajo lands include those that are under the administration of the Bureau of Indian Affairs, Eastern Navajo Agency, most of which are in the southern portion of the Resource Area. The majority of these lands are individual Indian allotments, tribal trust lands, and lands withdrawn for Indian use by Executive Order 1483 and Public Land Order 2198.

The close proximity of public lands to population centers creates an active lands program for the FRA.

Major urban areas in the northern portion of the FRA are Farmington, Aztec, and Bloomfield. Their approximate current populations are 37,000, 6,000, and 6,000 respectively. Located in the San Juan and Animas River valleys, they are interconnected by suburban and industrial areas. Gallup's population of about 20,000 makes it the principal urban area in the southern part of the Resource Area. Other commercial areas include Crownpoint and the 13 trading posts scattered throughout the region. They provide limited trade centers for the Navajo population living in their respective areas. Associated with the trading posts may be a post office, mission, school, homes, and in the case of Lybrook, an industrial site.

The close proximity of public lands to these population centers creates an active lands program for the Resource Area. There is a large demand for rights-of-way with priority on access, utility and telephone lines, and communication sites. There have also been a number of Recreation and Public Purposes (R&PP) leases and patents issued. The most common requests in this category have been for schools, churches, sanitary landfills, and recreation areas. This type of case work, plus an increasing request for land sales, will continue to grow as more land around the communities is developed.

Since 1950, oil and gas production and transmission has been the largest industry in the region. Concentrated in western Rio Arriba and San Juan counties, energy-related rights-of-way have historically been the major workload in the Farmington Resource Area's lands program.

Coal mining and the associated production of electrical power have created a need for high voltage powerline rights-of-way. If coal gasification becomes a reality, rights-of-way for large gas transmission lines will also be needed.

Paralleling the development of these industries has been the establishment of de facto right-of-way corridors. These corridors have been established by the placement of numerous transmission lines in the same areas as a result of various constraints. These constraints include topographic features, land status, and mineral conflicts.

FORESTRY

Approximately 600,000 acres of public lands in the Resource Area are dominated by a forest type known as "woodlands." This term is used to describe a pinyon pine/juniper climax species type normally found growing together. Depending upon the elevation, aspect, soils, and the availability of water, the dominant species can vary. Usually, the juniper will be more numerous on the more arid and lower sites and on southern aspects. The pinyon require more water to survive than the juniper and are usually outnumbered except on the north-facing slopes and the higher, cooler elevations with better soil. Woodlands are found scattered throughout the eastern and southeastern portion of the Resource Area. This type clings to the edges of the sandstone mesas and the steep slopes. Normally, the woodlands consist of an overstory of older trees with an understory of grass, brush, and younger trees. Browse and grass production is greater when the woodlands are young; as the stand matures, shading increases and limits understory production.

Woodlands are scattered throughout the eastern and southeastern portions of the Farmington Resource Area.

Many acres of woodland are not suitable for forestry management. Some of these are pinyon-juniper encroachment areas brought on by overgrazing or climatic factors. By eliminating the areas where topography is not favorable (more than 35 percent slope) and areas of poor soil or site, the remaining manageable area is less than 50 percent of the total. At this time about 45 percent of the total woodlands is capable of being managed on a sustained yield basis.

Isolated pockets of ponderosa pine, Douglas fir, aspen, cottonwood, and willow are found at the heads of many rocky canyons and north slopes within the woodland type. Cooler, wetter, and more protected sites are needed to support these larger conifers and deciduous trees. Other sub-types occur throughout the eastern half of the Farmington Resource Area. Among these are the Pinyon-Ponderosa-Oakbrush type usually found at the higher elevations. Oakbrush is the predominant understory occupying the small parks beneath the overstory of ponderosa pine. Another type, with limited range, is the Ponderosa Pine/Douglas Fir type. It is a mixture of pine and fir with an understory of oakbrush. This type comprises a small area along the southern border of the Resource Area and is also found in the Lindrith area.

There are approximately 7,400 acres of predominantly ponderosa pine types in the Resource Area, nearly all of which could be managed successfully for timber production. Steep topography is the primary factor limiting management. Timber harvesting technology has advanced to a degree that areas previously not economically feasible to harvest are now considered to be harvestable (refer to Table .34B-I, Chaco URA Step 2, page V and Table V-1, .34 Vegetation - Major Vegetation Types, San Juan Planning Unit USDI, BLM 1979a).

The present woodland uses consist of harvesting for fuelwood, fence posts, Christmas trees, and wildings. At least 50 percent of the Resource Area is open to these sales.

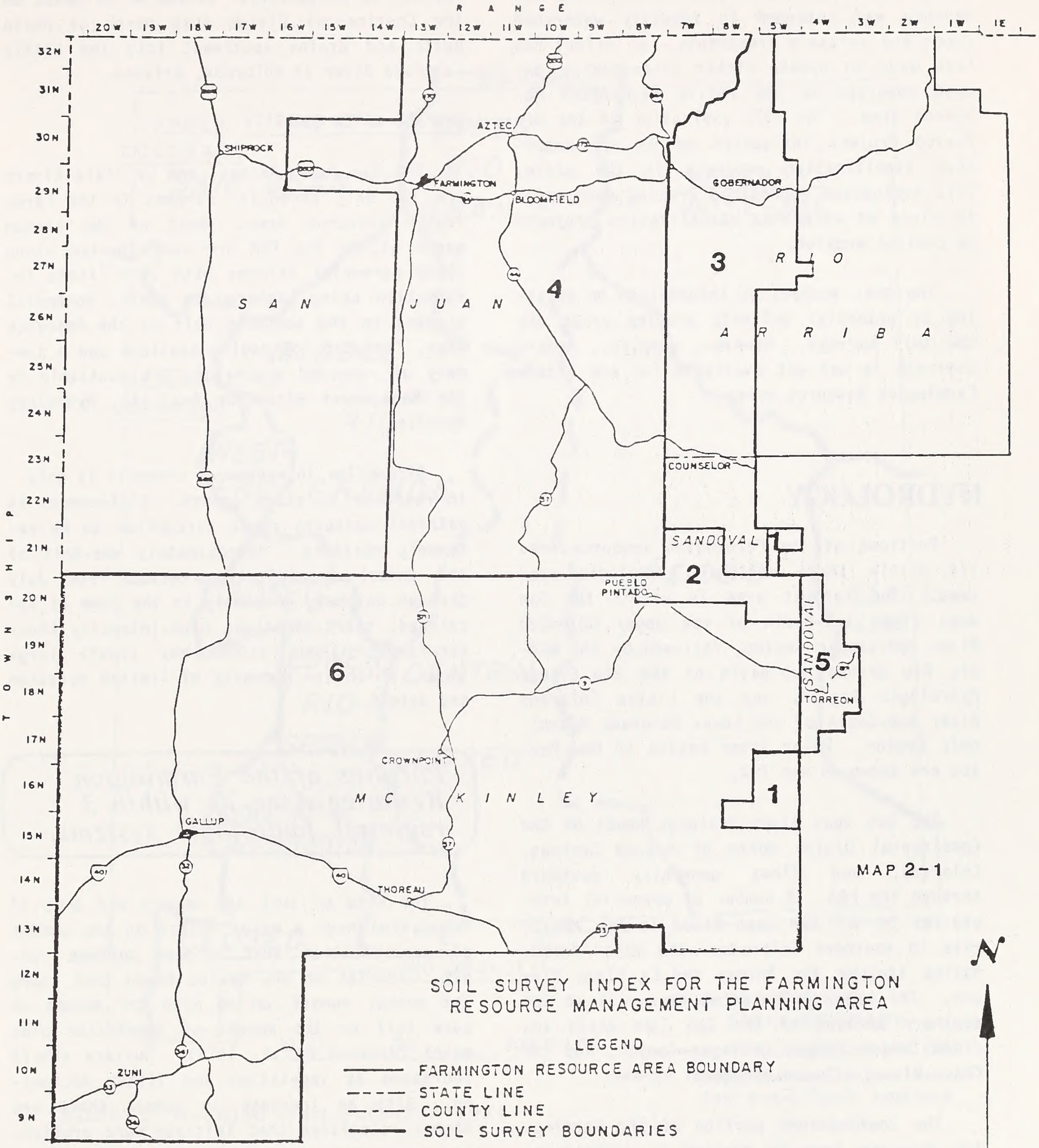
The woodlands were inventoried during the 1986 field season by the Intermountain Research Station at Ogden, Utah. The inventory was done in cooperation with the U.S. Forest Service, NM State Division of Forestry and other agencies. Its purpose was to obtain a reliable inventory of the woodland and forest resources. Other inventories have been completed in the past on the commercial forests of New Mexico, but this is the first directed specifically toward woodland resources. When information from this inventory is analyzed and a report becomes available, more realistic woodland and forest activity plans can be prepared.

SOILS

Published soil survey information is available for part of the Farmington Resource Area. Most of McKinley County is not covered by a published soil survey, however, a survey is currently being prepared. See Map 2-1 for a listing of available surveys and areas covered by each soil survey.

The most recent inventory of erosion problems in the FRA was a study of sediment yields in the San Juan Planning Unit (Earth Environmental Consultants, Inc. 1978).

A 1974 Phase I Watershed Conservation and Development Inventory rated soil surface conditions by watershed. Scattered tracts in



SOIL SURVEY INDEX FOR THE FARMINGTON RESOURCE MANAGEMENT PLANNING AREA

LEGEND

- FARMINGTON RESOURCE AREA BOUNDARY
- STATE LINE
- COUNTY LINE
- SOIL SURVEY BOUNDARIES

ONE INCH EQUALS APPROX. 18 MILES

1. Soil Survey - Sandoval & McKinley Counties, 1977
2. Star Lake Soil Survey, 1977
3. Soil Survey - Western Rio Arriba & Northwestern Sandoval Counties, 1976
4. Soil Survey - San Juan County - Eastern Part, 1980
5. Cabezon Soil Survey, 1968
6. Soil Survey - McKinley County - in progress

McKinley County were not included. The inventory was intended to identify watershed needs and suitable treatments. No effort has been made to update either inventory or expand coverage to the entire Farmington Resource Area. The 1972 evaluation of the Rio Puerco Project influenced nearly all watershed stabilization projects in the state. This evaluation emphasized grazing management in place of watershed stabilization projects to control erosion.

The best sources of information on existing or potential salinity problem areas are the soil surveys. However, complete, modern coverage is not yet available for the entire Farmington Resource Area.

HYDROLOGY

Portions of the Farmington Resource Area lie within three regional hydrologic systems. The largest area is within the San Juan River sub-basin of the Upper Colorado River Hydrologic Region, followed by the Middle Rio Grande sub-basin of the Rio Grande Hydrologic Region, and the Little Colorado River sub-basin of the Lower Colorado Hydrologic Region. Major river basins in New Mexico are shown on Map 2-2.

The San Juan River drainage heads on the Continental Divide north of Pagosa Springs, Colorado, and flows generally westward through the FRA. A number of perennial tributaries to the San Juan River in New Mexico rise in southern Colorado. The major tributaries include the Animas and La Plata Rivers. The major tributaries that rise in the southern portion of the San Juan Basin include Canyon Largo, Gallegos Canyon, and the Chaco River; all are ephemeral streams.

The southeastern portion of the Farmington Resource Area is drained by tributaries to the Rio Puerco River, which flows to the Rio Grande River. The two major stream systems draining southeast from the Continental Divide are Arroyo Chico and Rio San Jose. Both are ephemeral streams.

The Puerco River (different from the Rio Puerco) is an ephemeral stream which heads on the Continental Divide just north of Hosta Butte and drains southwest into the Little Colorado River at Holbrook, Arizona.

SURFACE WATER QUANTITY

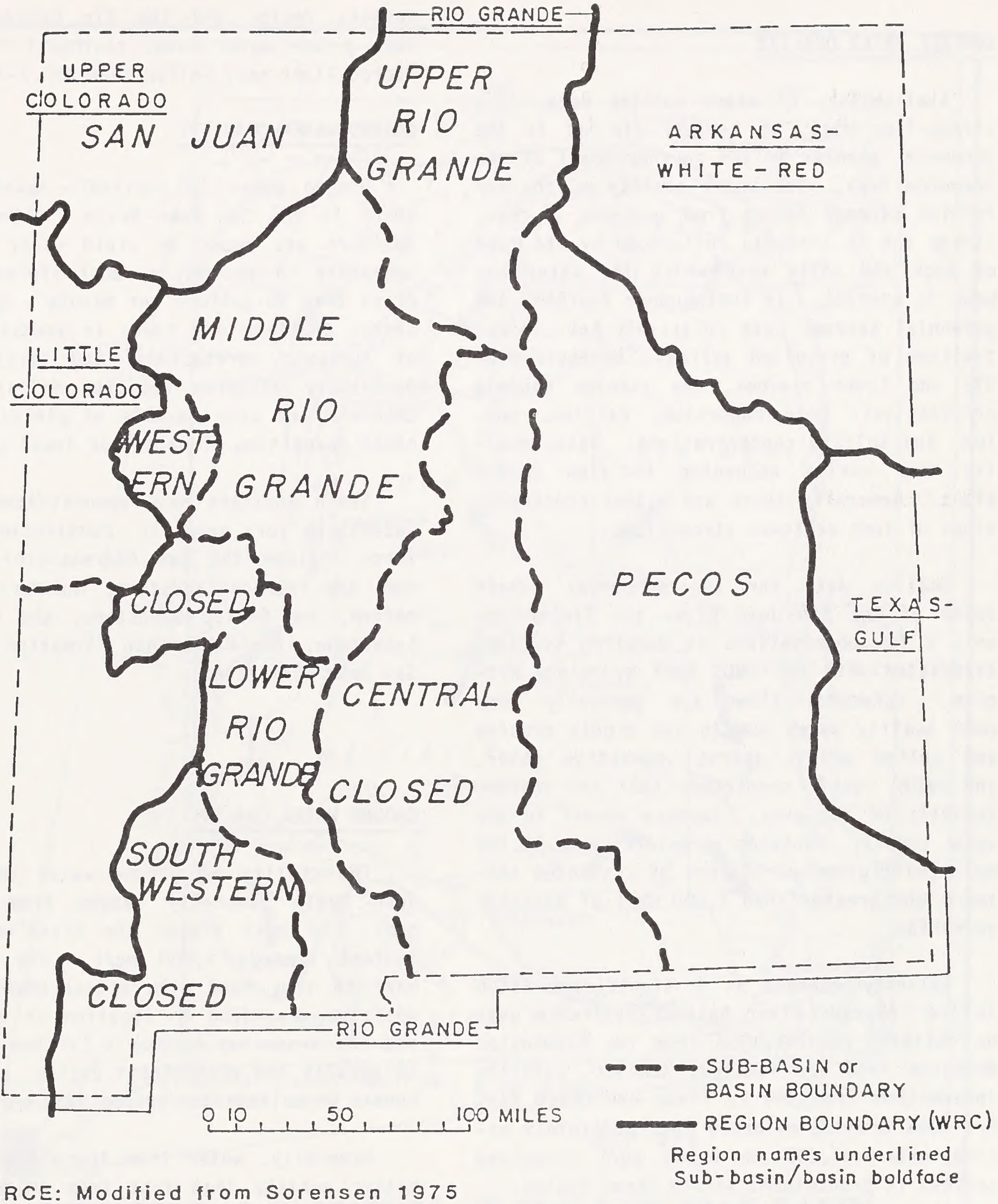
The San Juan, Animas, and La Plata Rivers are the only perennial streams in the Farmington Resource Area. Most of the stream gages within the FRA are concentrated along these perennial streams with very little information being gathered on small, ephemeral streams in the southern half of the Resource Area. Location of gaging stations and a summary of recorded discharges are available in the Management Situation Analysis, Hydrology Profile.

Streamflow in ephemeral channels is only in response to storm events. Differences in rainfall patterns cause streamflow to be extremely variable. Approximately one-half of the annual precipitation occurs from July through October, generally in the form of localized, short-duration, high-intensity thunderstorms. These storms may create large flows, which are commonly of limited duration and extent.

Portions of the Farmington Resource Area lie within 3 regional hydrologic systems.

The kind of soil and amount and type of vegetation have a major effect on the amount of precipitation that becomes surface runoff. Studies in New Mexico found that storm and annual runoff varied with the amount of bare soil or the amount of vegetation plus mulch (Branson et al. 1978). Surface runoff increased as vegetation and litter decreased. With an increase in runoff there are higher velocities that initiate more erosion, and more water that transports sediment and chemical pollutants off-site (EPA-BLM, 1979).

Within the Resource Area, 27 percent of the area covered by the San Juan Grazing Management EIS is in poor ecological condition, while in the Chaco Grazing EIS Area 14 percent is in poor condition. These areas cor-



SOURCE: Modified from Sorensen 1975

MAP 2-2

MAJOR SURFACE WATER DRAINAGE BASINS
in
NEW MEXICO

respondingly have sparse vegetative cover and contribute high runoff rates to the ephemeral channels.

SURFACE WATER QUALITY

Availability of water quality data, like stream-flow data, is largely limited to the perennial streams in the northern part of the Resource Area. The water quality of the perennial streams varies from upstream to downstream and is strongly influenced by the type of rock and soils with which the water has been in contact. In their upper reaches, the perennial streams have relatively low concentrations of dissolved solids. In their middle and lower reaches, the streams contain progressively more magnesium, calcium, sodium, and sulfate concentrations. Water quality also varies according to flow conditions. Generally there are higher concentrations of ions at lower streamflows.

Quality data for the ephemeral runoff south of the San Juan River are limited to only a few observations at sampling stations associated with the USGS coal hydrology program. Ephemeral flows are generally very poor quality water due to the highly erosive and saline soils, sparse vegetative cover, and rapid runoff conditions that are characteristic of the area. Surface runoff in the area usually contains greater than 10,000 mg/l (milligrams per liter) of suspended sediment and greater than 1,000 mg/l of dissolved solids.

Salinity control is a significant issue in the Colorado River Basin. Available data on salinity contribution from the Farmington Resource Area are limited, however, existing information from the La Plata and Chaco Rivers does provide evidence that moderately saline water (1,000 to 2,000 mg/l dissolved solids) is predominant within these basins.

GROUND WATER RESOURCES

The Farmington Resource Area coincides approximately with the San Juan Structural Basin as defined by Kelly (1951). This basin is larger than either the San Juan River Basin or the San Juan Underground Water Basin declared by the New Mexico State Engineer.

Natural discharge of ground water from San Juan Structural Basin aquifers generally occurs as the water moves toward the Four Corners region and the Rio Grande Valley. Some ground water moves southwest toward the Puerco River near Gallup (see Map 2-3).

GROUND WATER QUANTITY

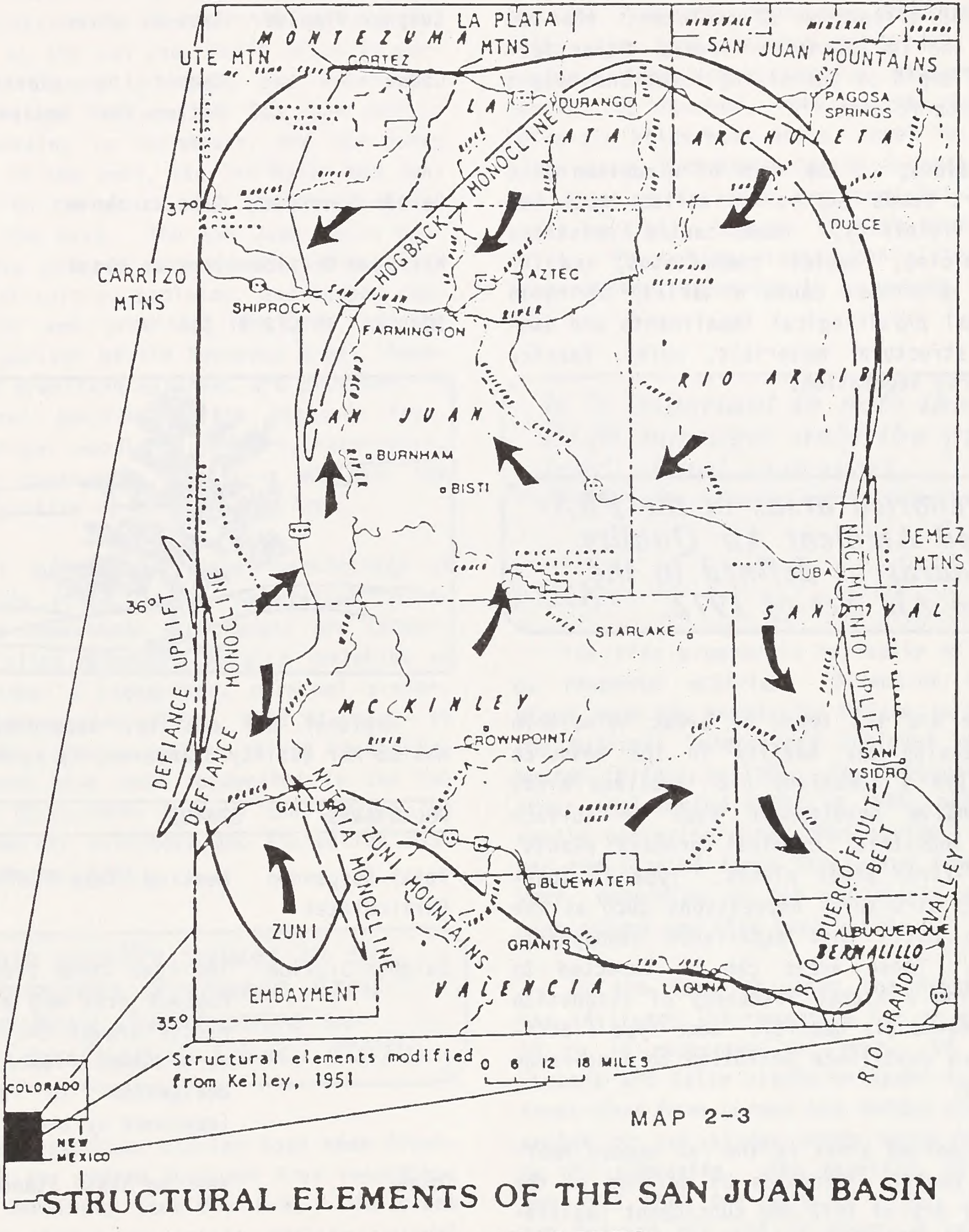
Ground water is available nearly everywhere in the San Juan Basin. Although many aquifers are known to yield water to wells somewhere in the basin, most yields are low (less than 20 gallons per minute - gpm). The better aquifers are found in sandstone units of Jurassic, Cretaceous, and Tertiary age. Quaternary alluvium deposits filling stream channels are also capable of yielding sufficient quantities of water for local use.

Seven aquifers have demonstrated 100 gpm potential for properly constructed wells. These include the San Andreas-Glorieta system, the Entrada Sandstone, the Morrison Formation, the Gallup Sandstone, the Ojo Alamo Sandstone, the Nacimiento Formation, and the San Jose Formation.

GROUND WATER QUALITY

The quality of ground water in the San Juan Basin generally ranges from fair to poor. In most places the dissolved solids content exceeds 1,000 mg/l. The water is hard to very hard with actual chemical composition depending on location of withdrawal and the producing aquifer. Calcium or sodium is usually the predominant cation, and bicarbonate or sulfate the predominant anion.

Generally, water from the alluvium is of better quality than that from adjacent bedrock aquifers because the recharge comes more directly from precipitation and usually has not been in contact with soluable minerals for very long. Where bedrock aquifers discharge to the alluvium, dissolved solid concentrations in alluvium will increase. More detailed information on ground water quality can be found in the FRA Management Situation Analysis Hydrology Profile.



Structural elements modified from Kelley, 1951

MAP 2-3

STRUCTURAL ELEMENTS OF THE SAN JUAN BASIN AND GENERALIZED DIRECTIONS OF GROUND-WATER MOVEMENT (INDICATED BY ARROWS)

Source: Modified from Lyford, 1979.

Adapted from SJRRCEIS/1984

AIR QUALITY

Air quality is generally affected by natural terrain and emissions. Ridges and high elevation areas usually experience better dilution and dispersion of pollutants than do valleys and low elevation areas. Other factors are depth of the mixing layer and height of emission release.

Emissions, in the form of windblown dust from dirt roads and barren soils, cause impaired visibility. Human-caused emissions from vehicles, chemical combustions, and industrial processes cause a variety of human and animal physiological impairments and damage to structural materials, paint, fabric, and natural vegetation.

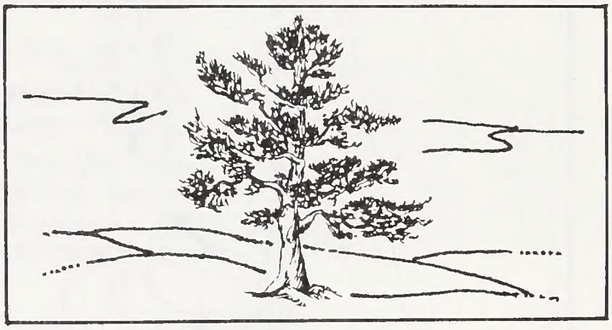
No reported areas in the FRA exceed Ambient Air Quality Standards as defined in the Clean Air Act of 1972.

There are two types of areas vulnerable to decreasing air quality in the Resource Area. Type I locations are localized areas of extensive development such as surface mining, industrial chemical process plants, and coal-fired power plants. Type II locations are structural depressions such as the San Juan Basin that experience atmospheric drainage. These areas can be expected to suffer from a higher frequency of stagnation and decreased air quality. Some Type I activities can contribute pollution to long-range transport.

No reported areas in the FRA exceed Ambient Air Quality Standards as defined in the Clean Air Act of 1972 and subsequent legislation. The FRA lies almost entirely within the Four Corners Interstate Air Quality Control Region which includes both national (Environmental Protection Agency [EPA]) and New Mexico State (Environmental Improvement Division) designations. The air quality in the region, according to National Ambient Air Quality Standards, is as follows:

POLLUTANTS	STATUS
Total Suspended Particulates	Better than National Standards
Sulphur Dioxide	Same as above
Ozone	Cannot be classified or Better than National Standards
Carbon Monoxide	Same as above
Nitrogen Dioxide	Same as above

SOURCE: 40 CFR 81.332



Regional air quality, according to New Mexico Air Quality Standards, is as follows:

POLLUTANTS	STATUS
Total Suspended Particulates	Meeting State Standards
Sulphur Dioxide	The Mesa Verde Plateau, the Hogback area and a 2.5 mile radius around the Four Corners Power Plant were redesignated to attainment (approved by the EPA).
Ozone	Meeting State Standards.
Carbon Monoxide	The City of Farmington was redesignated as attainment in June 1981.
Nitrogen Dioxide	Meeting State Standards.

SOURCE: Air Quality Bureau Annual Report 1983-84.

SCENIC QUALITY

The landscape composition in the Farmington Resource Area is quite diverse. In general, the Resource Area is characterized by a large depression in the earth's surface referred to as the San Juan Basin which is partially surrounded by mesas and mountains. Mountain ranges include the San Juan and La Plata Mountains to the north, the San Pedro Mountains to the east, the San Mateo and Zuni Mountains to the south, and the Chuska Mountains to the west. The San Juan Basin contains steep colorful escarpments, broad vistas, pastel-colored badlands, and rugged canyons which are prominent features of the southern portion of the Resource Area. Sagebrush and grassland expanses are prominent in the central portion of the Resource Area. Pinyon-juniper woodlands, rivers, reservoirs, and other human-made structures dominate the northern portion of the Resource Area.

Scenic quality and visual sensitivity of a landscape (land, water, vegetation, wildlife, and human-made structures) are subjective and often dependent on such variables as an individual's background, personal preferences, viewing time of day, time of year - to name a few. Scenic quality values in the Resource Area have been documented in the San Juan and Chaco MFPs through the use of the Scenic Quality Inventory and Evaluation System (BLM Manual 8411).

Scenic quality values in the Farmington Resource Area have been documented in the San Juan & Chaco MFPs.

Visual resources classes have been determined for the entire Resource Area regardless of land ownership (see Map 2-4). The class rating is based on scenic quality, visual sensitivity, and distance zone criteria. It is important to note the BLM manages only the public land visual resources.

Scenic vistas from major highway arterials, riverfronts, high places, and special management areas are important because of the associated sightseeing values. Sculpted landscapes of mesas and canyons along State Highways 371 and 44 offer high scenic values to a large number of people. Two major attractions to recreationists are water and high places. The San Juan and Animas Rivers and the numerous mesas and mountain ranges offer views both uncommon and typical in this region. Areas where special management attention is focused, such as the Bisti and De-na-zin Wilderness Areas, Angel Peak Recreation Area, and Simon Canyon Recreation Area and Area of Critical Environmental Concern, exist partially because of high scenic qualities. Protecting vistas within these areas from outside influences is a concern.

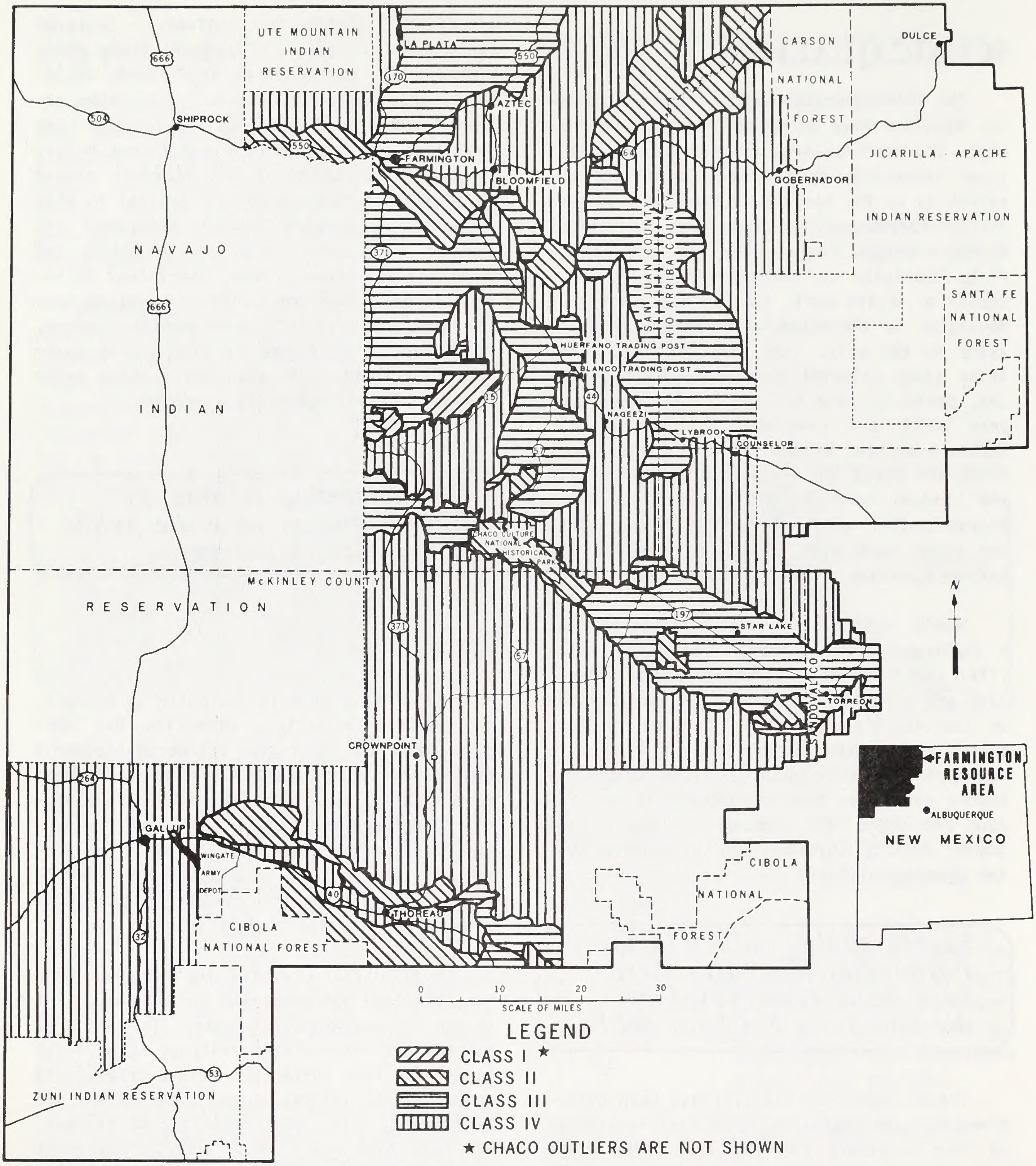
It is important to note the BLM manages only the public land visual resources.

FIRE

The fire program is basically an emergency response activity. Direction has been given from the Washington Office to implement the National Interagency Incident Management System (NIIMS) by 1986. The Albuquerque District implemented NIIMS in 1985, and is currently operating under that system. The number and size of fires fluctuates from year to year, depending on the occurrence of lightning storms and fine fuel build-up.

In the last 10 years the Resource Area has initiated 155 responses for an average of 15 to 16 responses per year. Of these 28 percent are false alarms believed to be small fires that have burned out before crews could arrive or oil sludge ponds being burned off by oil companies. The majority, 45 percent, are less than one acre in size; 14 percent are between one and 10 acres; 5 percent are larger than 10 acres; and 8 percent involve assisting another agency. Ignition sources are primarily lightning or man-caused. Fuels consumed are primarily cheatgrass, big sagebrush, pinyon and juniper. For more details on fuel types refer to the maps and fuel models in the Normal Fire Year Plan.

FARMINGTON RESOURCE AREA



MAP 2-4

VISUAL RESOURCE MANAGEMENT CLASSIFICATIONS

WILDLIFE

Wildlife habitat and wildlife species present in the planning area have previously been described in the unit resource analyses of the San Juan and Chaco Planning Units (USDI, BLM 1979a, 1981c). The Resource Area contains three broad habitat regions: pinyon-juniper woodland, sagebrush, and desert shrub-grassland. These regions correspond to the Great Basin Woodland, Great Basin Desert Shrub, and Great Basin Grassland biotic communities mapped by Brown and Lowe (1978) and described by Brown (1982).

Specific standard habitat sites and special habitat features have been mapped in the formerly designated Chaco Planning Unit but not elsewhere in the Resource Area.

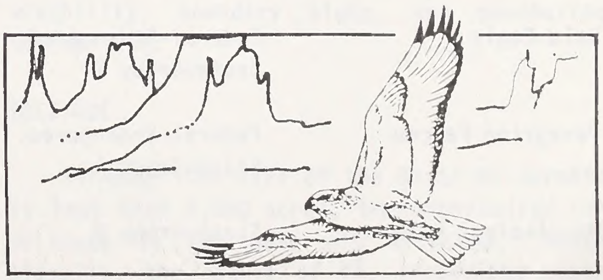
Most of the Resource Area south of State Highway 44 is not treated as deer and elk habitat.

The pinyon-juniper habitat of the northern La Plata River Valley and the areas adjacent to the Carson and Santa Fe National Forests support significant wintering populations of mule deer and elk. In mild winters relatively few deer or elk concentrate in these areas. Although elk numbers have been increasing in the area adjacent to the Carson National Forest, there are only a few resident deer or elk in the Farmington Resource Area at times other than the winter period. Most of the FRA south of State Highway 44 is not treated as deer or elk habitat. Approximately 100,000 acres of the Resource Area are considered important big game winter habitat.

Scattered small herds of pronghorn antelope can still be found in sagebrush and desert shrub-grassland types. However, even though there are large areas of apparently suitable habitat (Albee 1982), the population is estimated at less than 100 animals in the Resource Area and is considered to be declining, possibly due to poaching.

Comprehensive wildlife inventory data for non-game species are lacking for much of the FRA. Wildlife species lists presented in the Chaco and San Juan URA are not entirely accurate due to the lack of reliable field inventories. Two reports on file in the Resource Area provide some field inventory data. Kinskey (1977) describes a wildlife inventory which covered the Resource Area. However, the inventory area also included portions of the Carson and Cibola National Forests, which contain habitat types and species not found on the public lands in the Resource Area. A more intensive field inventory by Biowest Inc. (Albee 1982) covered only the Chaco strippable coal belt. A total of 175 species were documented, along with habitat occurrence information. Aerial big game counts conducted in cooperation with the New Mexico Department of Game and Fish (NMDGF) have been discontinued in recent years. A helicopter survey to search for big game concentration areas and raptor nests in the southern and southeastern portions of the Resource Area was conducted by BLM personnel in 1985. The existing information gathered by these inventories is considered adequate for planning.

Areas which have received special management attention in the FRA are raptor nesting areas for golden eagle, prairie falcon, and ferruginous hawk; bald eagle wintering areas, and riparian habitat areas. Monitoring of golden eagle, prairie falcon, and ferruginous hawk nests has been conducted since 1981, primarily to provide information for the coal leasing program. As of July 1986 a total of 95 nests of these species has been recorded. Several nests are contained in a single territory. Based on the limited data, it is estimated that these nests represent at least 43 territories. Up to 71 percent of the known territories have been occupied by paired birds during a single breeding season.



Bald eagle winter use in the area around Navajo Reservoir is well documented (Grubb 1984, Green 1980, Hubbard 1978). Renwald (personal communication 1985) estimates 80 to 100 bald eagles roost adjacent to the reservoir between November and March each year. An additional 20-30 bald eagles winter in the Animas River Valley. Probably less than 10 winter in the La Plata River Valley.

Riparian habitat associated with permanent water on public lands in the Resource Area is limited to 36 scattered tracts. These tracts contain 853 acres of riparian habitat and approximately 2,100 acres of associated upland habitat along the San Juan, Animas, and La Plata Rivers. Other than these rivers there are no natural perennial streams on the public lands. Small cottonwood stands occur in some major washes and around a few stock reservoirs, springs, and seeps. Greasewood and rabbit-brush stands and occasional patches of tamarisk occur along some washes. Some of these areas have been mapped as special habitat features, but there is presently no estimate of total acreage of this habitat. The steep rocky nature of the borders of Navajo Reservoir, combined with substantial water level fluctuations, prevent the development of a permanent riparian vegetation border around the lake.

THREATENED OR ENDANGERED SPECIES

The Farmington Resource Area is considered potential habitat for the following federal and state listed threatened or endangered species:

TABLE 2-1
FEDERAL AND STATE LISTED SPECIES

Species	Category
Black-Footed Ferret	Federal-Endangered, State-Group 1
Bald Eagle	Federal-Endangered, State-Group 1
Peregrine Falcon	Federal-Endangered, State-Group 1
Mississippi Kite	State-Group 2
Gray Vireo	State-Group 2
Baird's Sparrow	State-Group 2
Colorado River Squawfish	Federal-Endangered, State-Group 1
Roundtail Chub	State-Group 2
Knowlton's Cactus	Federal-Endangered State-Group 1
Mesa Verde Cactus	Federal-Threatened State-Group 1
Mancos Milk-vetch	Federal-Endangered State-Group 1
Zuni Fleabane	Federal-Threatened State-Group 1
*Grama Grass Cactus	State-Group 2
Checker Lily	State-Group 3
*Aztec Gilia	State-Group 2
*Succulent Dwarf Saltbush	State-Group 2
Wright's Fish-hook Cactus	State-Group 2
Whipple's Devil Claw Barrel Cactus	State-Group 3

*Federal Category 2 candidate species.

In addition the following Category 2 federal candidate species not listed by the state have been recorded in the Resource Area: ferruginous hawk, mountain plover, spotted owl, Swainson hawk, western snowy plover, western yellow-billed cuckoo, white-faced ibis, and spotted bat. Another Category 2 candidate, the occult bat, has been recorded in the Zuni Mountains and may possibly occur in the Resource Area. Federal Category 2 candidates are species for which information is being gathered to determine if they should be listed as threatened or endangered.

Little new information has been obtained to alter the treatment of threatened or endangered animals as presented in past planning documents. Winter surveys conducted in 1984 and 1985 following latest U.S. Fish and Wildlife Service (USFWS) guidelines (Clark et al. 1984) have not located any evidence of black-footed ferret. However, not all prairie dog towns in the FRA have been inventoried. Inventories for threatened or endangered plants conducted by the NM Heritage Program (Knight 1981, Knight and Cully 1986) and Ecosphere Environmental Services (1985) have provided information on potential and occupied habitats. Approximately 5,200 acres of the Resource Area is potential habitat for Mesa Verde Cactus and 40 acres is habitat for Mancos milk-vetch. Although there are approximately 320 acres of habitat suitable for Knowlton's Cactus, field searches of this potential habitat located no new populations on public lands. At least 125,400 acres of the Resource Area are considered habitat for Aztec gilia.

WILDERNESS

The Farmington Resource Area manages two Wilderness Areas and one Wilderness Study Area (see Map 2-5). The Bisti and De-na-zin were designated on Oct. 30, 1984. The Ah-shi-sle-pah WSA was recommended by the BLM as non-suitable for wilderness designation.

BISTI WILDERNESS

GENERAL DESCRIPTION

The Bisti contains 3,946 acres of public lands approximately 30 air miles south of Farmington. It is a desolate area of upland rolling topography and badlands terrain. Hunter and Gateway washes dissect the landscape, which consists of Kirtland Shale and Fruitland Formation outcrops oriented from northeast to southwest.

The badlands, at approximately 6000 feet elevation, support minimal vegetation and wildlife species.

NATURALNESS

The Bisti Wilderness is minimally impacted by the actions of man, and all existing intrusions are well-buffered by the surrounding vegetation and/or topography. No single long-term impact has an inordinate visual impact. The Bisti Wilderness appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable (USDI, BLM 1979b).

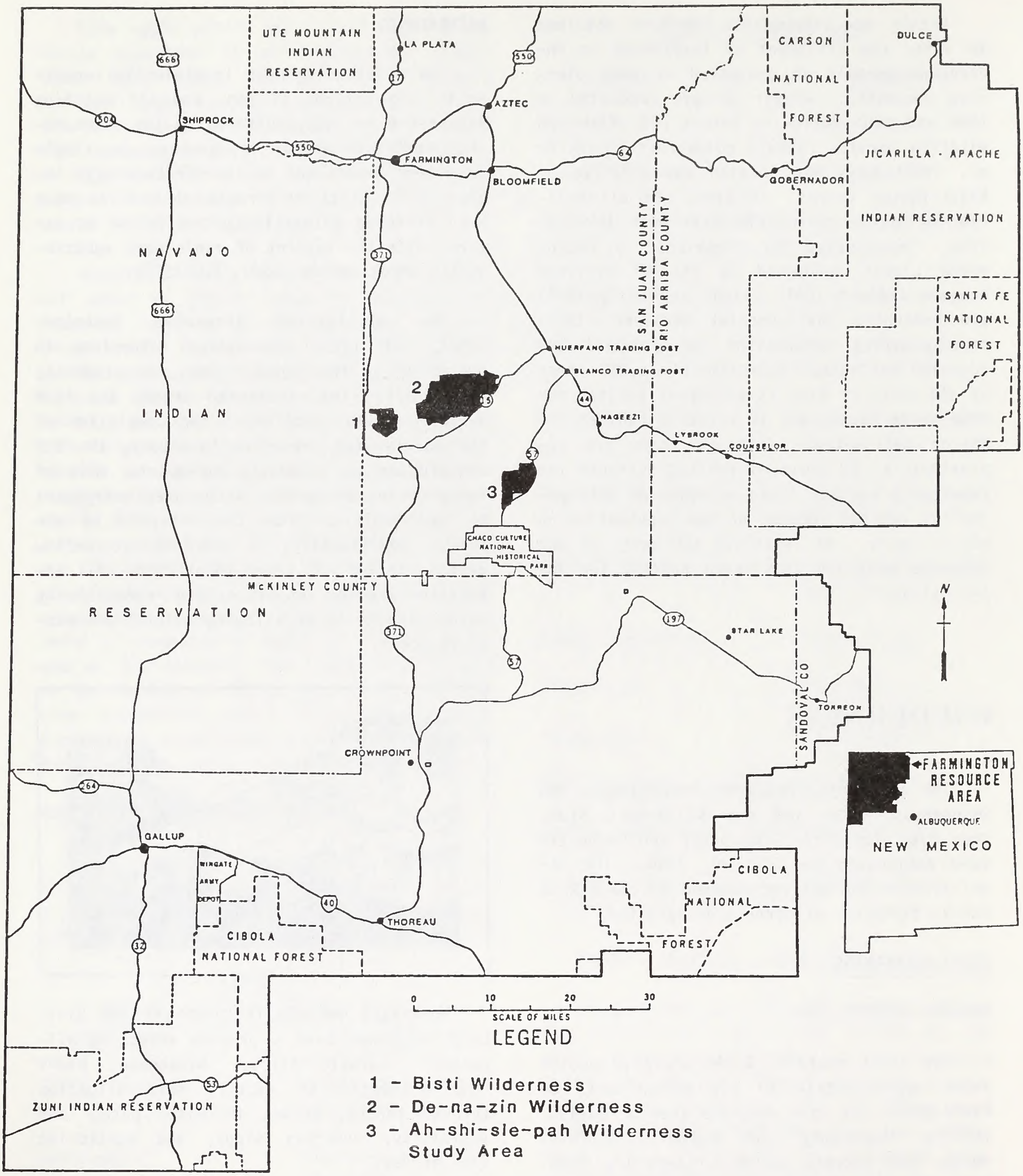
The accelerated intensive inventory (USDI, BLM 1979b) identified intrusions in the Bisti as two earthen dams, one windmill, nine drill sites, scattered trash, and five vehicle routes. Following the completion of the accelerated intensive inventory, the BLM constructed approximately one-quarter mile of fence during wilderness study area management to bar vehicles from the interior of the area. Additionally, a BLM/USGS streamflow gaging station was later identified. All intrusions are low impact, or are reversible by using hand tools or allowing natural processes to occur.

Motorized vehicle intrusion in the Bisti Wilderness has been a problem affecting wilderness characteristics. Management plans have attempted to rectify this situation through fences, berms, increased patrol and visibility, boundary signs, and monitoring visitor use.

SOLITUDE

Although the size of the Bisti Wilderness is less than 5,000 acres, the opportunity for solitude is not adversely affected. Additionally, the nature of the topography makes

FARMINGTON RESOURCE AREA



Map 2-5 Location of the Wilderness Areas and the Wilderness Study Area

practicable the preservation and use of the wilderness in an unimpaired condition. The topography of the majority of the area consists of a profusion of compact, rolling hills, dissected by narrow washes filled with mushroom formations and spires. This varied, rugged topography inherently provides an excellent buffer between potential user groups. The sparse vegetation in no way detracts from this characteristic of solitude, but simply enhances it (USDI, BLM 1979b). The highly dissected topography of the badlands offers the user an outstanding opportunity to find a secluded spot in the thousands of enclosures or spaces. Both of these factors compensate for the small size of the area.

PRIMITIVE AND UNCONFINED RECREATION

The rugged, broken badlands dominating the Bisti provide an opportunity for an unusual type of primitive and unconfined recreation. Unique opportunities for hiking, horseback riding, photography, and geological/paleontological sightseeing exist in the Bisti (USDI, BLM 1979b). It is the scenic nature of the badlands themselves that adds to the recreational opportunities in the northwest corner of New Mexico. People come from all over the region to see the Bisti, and the area has received media coverage through such nationally distributed magazines as Living Wilderness (Nothdurft 1981), Sunset (1981), and Frontier (Cheasebro 1980).

SPECIAL FEATURES

The Bisti has special geologic, scientific, educational, and scenic features.

The unique geomorphic features of the Bisti, and its associated scenic quality, are the result of different rates of weathering and erosion of the sandstone and mudstone resulting in toadstool and spire formations. The SE/4 of Sec. 33, T.24N., R.13W. is a particularly scenic area, and typical of the pockets of badlands relief found throughout much of the Bisti. This area consists of three separate beds of hard, white to light tan sandstone which exhibit thin, hard, maroon concretionary sandstone capping vertical pinnacles of white sandstone. The area's overall appearance has been described as a moonscape (USDI, BLM 1979b).

The paleontological values of the Bisti have been discussed in the report written for the BLM by Kues et al. (1977). The west side of the Bisti contains some of the best examples of the lower part of the Kirtland Shale and the upper part of the Fruitland Formation (USDI, BLM 1979b; Robison et al. 1982). It is in these formations that fossils of the Upper Cretaceous Period (approximately 70 million years ago) are found.

> ***The scenic nature of the badlands adds to recreational opportunities.***

DE-NA-ZIN WILDERNESS

GENERAL DESCRIPTION

The De-na-zin Wilderness contains 23,872 acres and is located approximately five miles east of the Bisti Wilderness and approximately 30 air miles south of Farmington. The De-na-zin Wilderness includes 4,172 acres of state lands and Navajo allotted lands. Three major washes (Willow, Alamo, and De-na-zin) dissect the landscape from northeast to southwest. Like the Bisti, the De-na-zin is composed of the Fruitland Formation and the Kirtland Shale with alternating layers of sandstone and gray, tan, and olive variegated shales. The Ojo Alamo Sandstone and Nacimiento Formation crop out in the northeast sector of the De-na-zin Wilderness. Vegetation ranges from sparse grassland at the 6000-foot elevation to sage, pinyon, and juniper at the 6700-foot elevation.

NATURALNESS

Evidence of man's intrusion is substantially unnoticeable in the De-na-zin Wilderness. Navajo inholdings contain various settlement structures (including trash dumps) and there is an unauthorized occupancy in the NE/4 NE/4 of Sec. 7, T.24N., R.11W. State and public lands contain grazing improvements such as windmills, fences, and stock tanks.

Drill holes from oil and gas and coal exploration activities are present. Because of the De-na-zin Wilderness Area's large size (23,872 acres), these intrusions are well-buffered as the eroded, broken topography helps to screen them.

Motorized vehicle intrusion in the De-na-zin Wilderness has been a problem affecting wilderness characteristics. Management plans have attempted to rectify this situation through fences, berms, increased patrol and visibility, boundary signing, and monitoring visitor use.

SOLITUDE

While occupied inholdings in the center of the De-na-zin Wilderness detract from the potential for solitude, the overall large size of the area negates impacts from the inholdings. The majority of the area is composed of rough badlands topography. This topography provides an excellent buffer between potential user groups. Vegetation is sparse in the badlands; the short grasses, shrubs, and few trees provide little vegetative screening. However, this lack of vegetation gives a feeling of spaciousness that is broken only by the terrain. The varied and rugged topography provides numerous niches and secluded spots that help provide an outstanding opportunity for solitude. If the proposed Dineh Generating Station is built, it would be visible from higher elevations of the De-na-zin (Woodward-Clyde 1982).

> ***Highly rugged terrain provides an excellent opportunity to find a spot secluded from other human sights & sounds.***

PRIMITIVE AND UNCONFINED RECREATION

The opportunity for primitive and unconfined recreation is available throughout the majority of the De-na-zin. The recreational potential is derived primarily from the unusual nature of the topography and the unique scenery. Hiking, horseback riding, and photographic opportunities are concentrated in the badlands in the southern two-thirds of the area. The major washes and tributaries offer a unique and intriguing visual experience. Sightseeing associated with the supplemental values include geologic and paleontologic attractions. Petrified wood and a variety of other plant and animal fossils are abundant (USDI, BLM 1979b). The potential for seeing fossils while exploring the unique and beautiful scenery provides an outstanding opportunity for primitive and unconfined recreation.

SPECIAL FEATURES

From a paleontological standpoint, the De-na-zin Wilderness is most important for its educational and scientific values. It contains rocks of the Fruitland Formation and Kirtland Shale, deposited when dinosaurs were dominant, to the Ojo Alamo Sandstone and Nacimiento Formation, deposited as mammals became dominant.

In addition, the area contains archeological sites. The majority of these sites date to the Archaic period. These sites have important scientific and educational values. The area may also contain burial sites and sacred sites with important heritage values to the Navajo Indian people.

AH-SHI-SLE-PAH WILDERNESS STUDY AREA

GENERAL DESCRIPTION

The Ah-shi-sle-pah WSA contains 6,563 acres of public lands and is located approximately 40 miles southeast of Farmington. The WSA, at 6000 feet elevation, is comprised of badland topography resulting from the erosion of the Fruitland Formation and the Kirtland Shale.

NATURALNESS

The BLM's 1979 wilderness inventory identified one dumping area, two earthen dams (one with a fence), two rain gages, one drill site, two fences, and 11 routes as intrusions in the Ah-shi-sle-pah WSA. The following intrusions were not included in the 1979 inventory report: four wells, two fences, two earthen dams, three rain gages, and one streamflow gage. All intrusions are of low impact, or of a type reversible by natural processes or by hand tools (considering expected constraints of time, money, and technology). All of these intrusions may be required for authorized users. The WSA's intrusions are generally well-buffered by topography or vegetation. When viewed as a whole, the WSA appears to have been primarily affected by the forces of nature, with the evidence of man's intrusions substantially unnoticeable (USDI, BLM 1979b).

SOLITUDE

The majority of the WSA contains badlands formations, upland rolling terrain, and intermittent washes. The highly rugged terrain provides an excellent opportunity for the user to find a spot secluded from other human sights and sounds (USDI, BLM 1979b). This opportunity is concentrated in the center of the WSA where the badlands occur. The remainder of the WSA consists of rolling grasslands, which do not offer much screening between the user and activities outside the WSA, or between users inside the WSA. The vegetation of the WSA does not provide significant opportunites for seclusion but, rather, emphasizes the feeling of expansive solitude.

PRIMITIVE AND UNCONFINED RECREATION

Opportunities for primitive and unconfined recreation within the Ah-shi-sle-pah WSA are tied to its topography. The expansive rolling hills and the intricate dissected badlands provide the WSA with varied opportunities for dispersed recreation. The badlands offer the opportunity for hiking, camping, horseback riding, sight-seeing, and photography. The WSA is used primarily for day hiking, with some overnight use. Sightseeing opportunities related to the inherent scenic, geological and paleontological values exist throughout the WSA.

SPECIAL FEATURES

The Ah-shi-sle-pah WSA has special scenic, geologic, scientific, and educational features. The scenic values of the WSA are primarily derived from the badlands topography and coloration, which are the result of geologic processes. The rolling grassland portion of the WSA does not provide the same type of visual experience.

Because the WSA contains outcrops of the Fruitland Formation and Kirtland Shale, geological and paleontological, educational, values and scientific values exist. The Ah-shi-sle-pah WSA contains roughly the same kind of paleontological resource as the Bisti WA. The difference between the Bisti WA and Ah-shi-sle-pah WSA is that more badlands acreage, in which to find paleontological resources, occurs in the Ah-shi-sle-pah WSA. The most complete dinosaur fossil remains found in the WAs and the WSA were removed from the Ah-shi-sle-pah WSA, and some outstanding examples of petrified stumps occur there.

The Ah-shi-sle-pah WSA contains archeological sites that have intrinsic scientific and educational values, and sacred sites with value to the Navajo Indian people.

CULTURAL RESOURCES

CULTURE HISTORY

The San Juan Basin is an area of major significance, containing archeological and historic resources that range from Paleo Indian sites to twentieth century historic sites. These sites span over 10,000 years of occupation including the mobile Paleo and Archaic groups, the transitional Basketmakers, the sedentary Anasazi adaptations, and the historic Navajo. The Anasazi sites include examples of both the well-known Mesa Verde and Chacoan cultures.

> *The Anasazi sites include examples of both the Mesa Verde and Chacoan cultures.*

PALEO-INDIAN (10,000 - 5,000 B.C.)

The earliest occupants of the San Juan Basin were nomadic hunters and gatherers following herds of now extinct bison and mammoth. Evidence of Paleo-Indian sites is scant, with identification based primarily on projectile point typology.

ARCHAIC (5,000 - 1,000 B.C.)

Subsistence adaptations shifted to hunter and gatherer strategies using plant and animal resources. Sites appear to be concentrated in the north and northeastern sections of the San Juan Basin and are commonly found in upland dunes, on elevated ridges, and/or on mesas near water sources (Judge 1982). Sites are indicated by lithic scatters and associated soil stains or hearths.

BASKETMAKER (1,000 B.C. - A.D. 700)

This period was one of transition from a nomadic to a sedentary lifestyle. Agriculture became far more dominant in subsistence strategies by the end of the period. Ceramic technology also became more sophisticated. Higher site densities are found in the southwest, west-central, and far northeast portions of the Basin. Site features include pithouses, hearths and cists, artifact scatters, and trash middens.

PUEBLO I (A.D. 700 - 900)

Sedentism was well-established and habitation sites include above-ground rooms of jacal (wattle and daub) with masonry footings; subsurface pit-houses evolved into kivas. Site density is generally low, but higher site densities are found in the northeastern portion of the Basin and near perennial streams (Cordell 1982).

PUEBLO II (A.D. 900 - 1050)

Anasazi sites were most widespread during this period (Lipe 1978). Small masonry pueblos were the dominant habitation site type and ceramic styles were varied (Cordell 1982). The large Chacoan towns were in the final stages of construction and were scattered throughout most of the Basin. The complex Chacoan system has been described as a huge wheel with a hub centered at Chaco Canyon and linked by prehistoric roads to about 80 outlying towns and/or communities containing Chacoan attributes (Stuart and Gauthier 1981).

During Pueblo II there were essentially three levels of development occurring simultaneously in the San Juan Basin: a basketmaker-like adaptation in the Navajo Reservoir district where the population was using a mixed strategy of foraging and agriculture and living in pithouses and jacal structures; localized groups living in small multi-room masonry pueblos and depending primarily on an agricultural subsistence base; and the Chacoan phenomenon with a highly organized social and economic network.

The complex Chacoan system has been described as a huge wheel with a hub centered at Chaco Canyon.

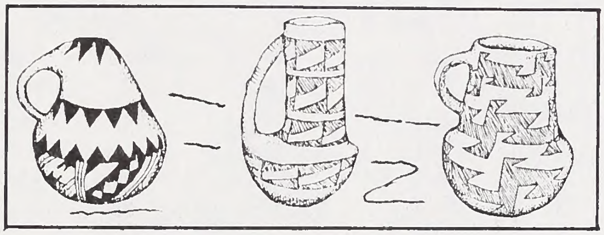
PUEBLO III (A.D. 1050 - 1300)

The Chacoan system collapsed early in the twelfth century. Chacoan sites were then briefly reoccupied by a population exhibiting Mesa Verde traits (i.e. ceramic styles and architectural techniques). Newly built sites were smaller and appear to be clustered in areas of higher elevation like Chacra Mesa and Mesa Portales.

The Navajo Reservoir area was abandoned by the beginning of this period with the population probably shifting east and south to form the basis of the Gallina phase occupation near Lindrith and Llaves. These sites still exhibited the Basketmaker-Pueblo I characteristics of pithouses and jacal structures, but also included stockades and were often located in defensible positions. Many sites were burned and the skeletal remains show evidence of violent death. By A.D. 1300, the Anasazi had abandoned the San Juan Basin and shifted east to the Rio Grande Valley and west into Arizona.

HISTORIC (A.D. 1500 - Present)

Although some Athabaskan groups may have moved south into the Basin in the twelfth and thirteenth centuries, Navajo culture does not become clearly evident until at least the mid-1500s. New evidence of an early Navajo occupation dating to the A.D. 1400s has recently been uncovered in the La Plata Valley. Solid evidence of Navajo occupation in the Gobernador area dates to the late 1600s. These early sites usually consist of ceramic and lithic scatters associated with hearths and soil stains. Spanish records document forked-stick hogans and pueblitos in the early to mid-1700s. These sites are defensively positioned on mesa tops, cliff faces, and on top of large boulders. The early Navajo economy was based on a mixture of farming, hunting, trading, herding, and occasional raiding (Wozniak and Winter 1983). At this same time, Pueblo Indians from the Rio Grande joined the Navajo to escape Spanish oppression.



Attacks by the Utes and changes in environmental conditions resulted in Navajo abandonment of the Gobernador area by 1775. The latter part of the 1700s was also characterized by a transition from dependence on agriculture to adoption of pastoralism. Conflicts with the Ute continued into the nineteenth century and encounters with the U.S. military increased. In 1864 2,400 Navajo began the "Long Walk" to the Bosque Redondo, near Ft. Sumner. The financial burden of maintaining facilities for 8000 to 8500 people led to the abandonment of the Bosque Redondo experiment and the creation of the Navajo Treaty Reservation with the United States in 1868 (York 1984). Later Navajo adaptations, settlement areas, and historical events are well summarized in Brugge (1980 and 1981), Wozniak and Winter (1983), Hogan and Winter (1983), and York (1984) and other documents.

Beginning in the late 1870s, Euro-American settlers began moving into the San Juan, La Plata, and Animas River valleys. The early economy focused on agriculture and grazing. A recent overview of settlement in the La Plata valley is presented in Dykeman and Langenfeld (1984).

INVENTORY AND SUMMARY

The Farmington RA's cultural resource data base has recorded 1,234,000 acres of inventory on federal and non-federal lands in the San Juan Basin. Of these, only about 471,000 acres (Table 2-2, Figure 2-1, Map C) of inventory are considered to contribute reliable information about the location and identification of the full range of cultural resource sites.

Most of the inventories on BLM land consist of small areas covered prior to surface-disturbing activities associated with oil and gas development. Large Class II and Class III inventories have been conducted prior to coal leasing, development of surface mines, and other large surface-disturbing projects (Huse et al. 1978; Beal 1978, 1978a, 1978b, 1979; Dulaney 1980; Powers et al. 1980; Kemrer 1981; Harlan 1982; BLM Class II inventory for the SJRRC EIS, preliminary report 1982).

CULTURAL RESOURCE INVENTORY
(1:100,000 Quadrangles)

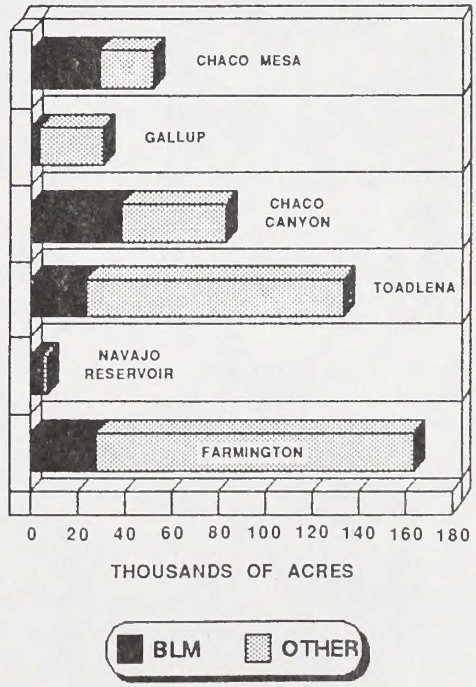


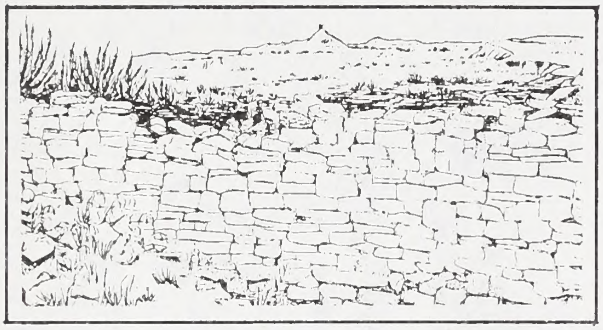
FIGURE 2-1

TABLE 2-2

ACRES INVENTORIED FOR CULTURAL RESOURCES

Area (1:100,000)	BLM	Other	Total (%)
Farmington	28,184	135,568	163,752 (2.1%)
Navajo Reservoir	5,677	1,328	7,005 (0.1%)
Toadlena	23,567	110,330	133,897 (1.7%)
Chaco Canyon	38,674	44,910	83,584 (1.1%)
Gallup	3,802	27,116	30,918 (0.4%)
Chaco Mesa	29,244	22,888	52,132 (0.7%)
TOTAL	**129,148**	**342,140**	**471,288 (6.1%)**

To date, 18,292 sites (Map B in back cover map pocket) with a total of 21,548 components have been recorded within FRA boundaries. Of these, 4,275 components are located on lands administered by the BLM. A component is a period of occupation, i.e. Archaic, Basketmaker, or Pueblo, etc. Therefore, a site with evidence of occupation from A.D. 200-900 would contain three components (Basketmaker, Pueblo I and Pueblo II).



Site components and ownership are broken down as follows:

TIME PERIOD	BLM	OTHER	TOTAL	%
Paleo	6	29	35	(0.16)
Archaic	250	656	906	(4.20)
Basketmaker	160	802	962	(4.46)
Pueblo	1,009	5,302	6,311	(29.29)
Navajo	842	1.728	2,570	(11.93)
Historic	850	4,160	4,956	(23.00)
Unknown	1,158	4,650	5,808	(26.95)
TOTAL	4,275	17,273	21,548	100.00

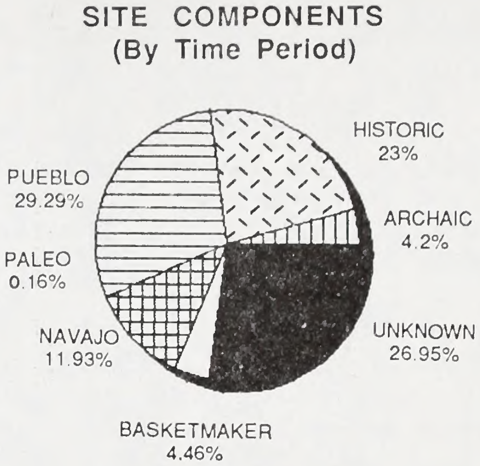


FIGURE 2-2

A more detailed presentation of site component distribution is in Table 2-3.

Chacoan, post-Chacoan, and Navajo Refugee sites are currently represented on the National Register of Historic Places (NRHP). These sites are described in Stuart and Gauthier (1981). Current National and State Register lists are also available from the State Historic Preservation Officer (SHPO).

Legislation mandates the preservation, protection, research and interpretation of the Chacoan system.

The Twin Angels and Halfway House outliers, the Chaco Mesa thematic group (40 sites), the Crow Canyon Archeological District, which includes the Shaft and Crow Canyon Ruins, and Frances Ruin are the only sites or districts managed by the BLM which are on the NRHP. In addition, the BLM is responsible for 35 Navajo Refugee pueblitos, a Basketmaker-Pueblo site (the East Side Rincon Site), and three Chacoan outlier districts on the State Register of Cultural Properties.

In addition, Title V of PL 96-550 was passed by Congress in 1980. PL 96-550 recognized the potential for conflicts between resource preservation and energy development in the San Juan Basin. The legislation mandates the preservation, protection, research, and

TABLE 2-3: DETAILED PRESENTATION OF SITE LOCATIONS*

FARMINGTON

Time Period	BLM	Other	Total (%)
Paleo	2	3	5 (0.18)
Archaic	23	216	239 (8.74)
Basketmaker	10	46	56 (2.05)
Pueblo	210	553	763 (27.92)
Navajo	32	346	378 (13.83)
Historic	123	434	557 (20.38)
Unknown	208	527	735 (26.89)
Total	608	2125	2733 (100.00)

NAVAJO RESERVOIR

Time Period	BLM	Other	Total (%)
Paleo	1	3	4 (0.16)
Archaic	35	38	73 (2.91)
Basketmaker	98	100	198 (7.89)
Pueblo	178	649	827 (32.97)
Navajo	186	291	477 (19.02)
Historic	101	235	336 (13.40)
Unknown	226	367	593 (23.64)
Total	825	1683	2508 (100.00)

TOADLENA

Time Period	BLM	Other	Total (%)
Paleo	1	14	15 (0.55)
Archaic	103	139	242 (8.80)
Basketmaker	26	141	167 (6.07)
Pueblo	101	372	473 (17.21)
Navajo	47	414	461 (16.77)
Historic	106	273	379 (13.79)
Unknown	281	731	1012 (36.81)
Total	665	2084	2749 (100.00)

CHACO CANYON

Time Period	BLM	Other	Total (%)
Paleo	1	5	6 (0.12)
Archaic	61	108	169 (3.29)
Basketmaker	20	279	299 (5.83)
Pueblo	150	1385	1535 (29.90)
Navajo	252	120	372 (7.25)
Historic	204	1159	1363 (26.55)
Unknown	243	1146	1389 (27.06)
Total	931	4202	5133 (100.00)

GALLUP

Time Period	BLM	Other	Total (%)
Paleo	0	2	2 (0.07)
Archaic	2	15	17 (0.59)
Basketmaker	5	105	110 (3.85)
Pueblo	60	913	973 (34.02)
Navajo	63	313	376 (13.15)
Historic	68	695	763 (26.68)
Unknown	28	591	619 (21.64)
Total	226	2634	2860 (100.00)

CHACO MESA

Time Period	BLM	Other	Total (%)
Paleo	1	1	2 (0.12)
Archaic	24	100	124 (7.26)
Basketmaker	1	49	50 (2.93)
Pueblo	105	171	276 (16.15)
Navajo	158	127	285 (16.68)
Historic	117	378	495 (28.96)
Unknown	108	369	477 (27.91)
Total	514	1195	1709 (100.00)

ZUNI

Time Period	BLM	Other	Total (%)
Paleo	-	1	1 (0.04)
Archaic	1	3	4 (0.15)
Basketmaker	-	3	63 (2.29)
Pueblo	95	791	886 (32.27)
Navajo	97	77	174 (6.34)
Historic	110	777	887 (32.30)
Unknown	47	684	731 (26.62)
Total	350	2396	2746 (100.00)

GRANTS

Time Period	BLM	Other	Total (%)
Paleo	-	-	-
Archaic	1	37	38 (3.42)
Basketmaker	-	19	19 (1.71)
Pueblo	110	468	578 (52.07)
Navajo	7	40	47 (4.23)
Historic	21	155	176 (15.86)
Unknown	17	235	252 (22.70)
Total	156	954	1110 (100.00)

SOURCE: State of N.M., Historic Preservation Division, Archeological Records Management System, December 1985

*Sites are grouped by 1:100,000 maps covering the Farmington Resource Area.

interpretation of the Chacoan system and provides for greater protection than listing on the National Register of Historic Places alone.

Formal determination of eligibility has been completed on 1,197 sites in the FRA. Of these, 896 were declared eligible for the National Register. In addition, of 1,128 sites, 998 have been informally recommended as eligible during Section 106 consultation for numerous projects related primarily to oil and gas development. These figures suggest that approximately 80 percent of the sites in the San Juan Basin warrant protection under the National Historic Preservation Act of 1966 (NHPA).

PALEONTOLOGY

A variety of paleontological resources exist in the Farmington Resource Area. Among them are both invertebrate and vertebrate animal fossils; fossil leaves, palynomorphs, and petrified wood; and trace fossils. These occur in the Triassic, Jurassic, Cretaceous, and Tertiary-aged rocks of the San Juan Basin.

Several paleontological inventories, surveys, and/or assessments have been done in the area now encompassed by the Resource Area. There have been both reconnaissance and site-specific inventories, and those combining both types. Due to the high rate of erosion in the shales and mudstones, much of the earlier site-specific inventory data may now be unreliable. Areas that have been shown to be productive in previous reconnaissance inventories will probably continue to be important as they do not rely on isolated occurrences of a particular specimen or specimens.

Le Mone et al. (1979) did an inventory for the proposed La Plata coal mine on the New Mexico-Colorado state boundary. Examples of all the major groups of fossils found in the San Juan Basin were found in this study located in Township 32N. and Ranges 12W. and 13W. Site-specific inventory data were collected and recorded from the rocks of the Lewis Shale through Kirtland Shale that crop out in the examined area.

Ash et al. (1979) did a survey of the San Juan Planning Unit of the FRA and of the Rio Puerco Resource Area. The objective was to evaluate the significance of the paleontological resources. They indicated that all of the sedimentary units from the Point Lookout Sandstone on up, except the Quaternary alluvium, contain fossils of some type. Additionally they indicated four areas within the Resource Area that are paleontologically significant and merit mitigation. These areas are: the Santos Peak area, with an important paleobotanical content and potential for vertebrate remains in the Eocene San Jose Formation; Kutz Canyon, which has numerous Paleocene mammal localities in the Nacimiento Formation; the area west of Farmington, because the type sections of the Pictured Cliffs Sandstone, Fruitland Formation, and Kirtland Shale are on, or adjacent to, public lands in the Resource Area; and the Regina area, which produced the classic vertebrate collections of the early paleontologists Cope, Granger, and Simpson, and which contains important San Jose Formation remains.

One of the other proposed preserves is now the Fossil Forest Research Natural Area.

The paleontological resources of the southern portion of the Resource Area were surveyed for the BLM (Flessa 1981) in the stratigraphic section exposed in the area ranging from the Triassic Chinle Formation through the Cretaceous Menefee Formation and the Pliocene Bidahochi Formation. Fossils were found in all of the formations except the Entrada Sandstone, Bluff Sandstone, and Cow Springs Sandstone. Fossil content ranged from sparse to abundant. Five sites were recommended for preservation or mitigation of their paleontological resources. One of these sites contains two type sections (the Two Wells Sandstone Tongue of the Dakota Sandstone and the Whitewater Arroyo Shale Tongue of the Mancos Shale). This site was recommended to be preserved as an important reference section, particularly since it has yielded biostratigraphically important fossils.

Kues et al. (1977) completed a survey of a large portion of the San Juan Basin. A literature search, reconnaissance, and intensive surveys were accomplished for the study. This resulted in a resource assessment, a suggested mitigation plan for coal mining, and a recommendation of six areas as paleontological preserves. The majority of the federally owned surface of two of the preserves is now part of the Bisti and De-na-zin Wilderness Areas. One of the other proposed preserves is now the Fossil Forest Research Natural Area (RNA). A portion of the proposed Torreon Wash Paleo Preserve was designated an Area of Critical Environmental Concern in the Rio Puerco RMP as the Torrejon Fossil Fauna ACEC. Part of this area is in the FRA. Two additional areas are Kutz Canyon and Betonnie Tsosie Wash.

Froelich and Kues (1977) reviewed literature and previous collections from paleontological research in the areas near Bisti, N.M., that are leased to Western Coal (now Sunbelt Mining Co.) and Public Service Company of New Mexico. Additionally, all exposures within the leased land were intensively surveyed, including fossil collection from many of the 171 localities identified. Nearly 50 taxonomic groups of plants, vertebrates and invertebrates were found.

Chaco Energy Company (1977) conducted a survey for their proposed Star Lake Coal Mine. This included an inventory of the area and a proposed mitigation plan. No critical areas requiring withdrawal were noted. Eleven significant sites were identified and 58 other sites were located that merit some mitigation.

Collection permits may be issued for research, museum, or educational projects.

The Fossil Forest RNA has been designated under the San Juan Basin Wilderness Protection Act of 1984 for its paleontologic value. It contains over 40 petrified tree stumps. Of greater scientific value are its dinosaur and mammal fossils. Collection permits may be issued for research, museum, or educational projects. The New Mexico Bureau of Mines and Mineral Resources is conducting an ongoing study of the vertebrate fossils in the RNA.

For the most part, the paleontological resources in the FRA are available for both public and scientific uses. Coal and uranium mining may potentially impact the resources. Oil and gas operations have not affected paleontological resources much since the companies tend to avoid rock outcroppings, particularly badlands. Illegal hobby collection and unpermitted commercial sales of vertebrate fossil material are suspected to be occurring, but it is difficult to evaluate the extent of this impact.

OUTDOOR RECREATION

Public lands in the Farmington Resource Area offer the opportunity to enjoy outdoor recreation in three major categories - developed, dispersed, and motorized recreation.

DEVELOPED RECREATION

Developed recreation opportunities are those which partially rely on human manipulation or improvements of the land, as is the case with Angel Peak Recreation Area and Simon Canyon Recreation Area. Recreation opportunities at Angel Peak include hiking, sightseeing, vehicle and tent camping, and picnicking. Support facilities include camping pads, picnic shelters, outhouses, and parking areas. Opportunities at Simon Canyon include hiking, fishing, tent camping, and picnicking. Support facilities include parking areas, scenic viewing areas, and trails.

DISPERSED RECREATION

Dispersed recreation opportunities occur on public lands throughout the Resource Area. These opportunities rely predominantly on a natural landscape and include photography, hiking, backpacking, picnicking, horseback riding, hunting, and sightseeing related to geologic, cultural, wildlife, and visual resources. The proposed Continental Divide National Scenic Trail corridor, as identified in the Continental Divide National Scenic Trail Comprehensive Plan (USDA 1985), traverses the southeast portion of the FRA. The approved Rio Puerco Resource Area RMP has identified a treadway that places the only feasible location of a treadway in the Farmington Resource Area in the Mount Taylor Ranger District of the U.S. Forest Service. In this light there are no BLM-administered lands in the Farmington Resource Area that are conducive to treadway placement.

Opportunities exist for water-related recreation along BLM riverfront property on the San Juan and Animas Rivers. The Bisti and De-na-zin Wilderness Areas and the Ah-shi-sle-pah Wilderness Study Area have been formally identified as containing outstanding opportunities for primitive and unconfined types of recreation.

MOTORIZED RECREATION

Motorized recreation on public lands includes opportunities for off-highway vehicles (OHV - off the pavement, on existing maintained or primitive roads) and off-road vehicles (ORV - cross-country travel, off existing routes). Motorized vehicle use by various classes and types of motorcycles, dune buggies, all-terrain vehicles, and fourwheel drive vehicles occurs mainly near population centers and near major highway arterials. Concentrated use is known to occur in the Glade north of Farmington, and on the bluffs south of Farmington. Four-wheel driving associated with woodcutting, hunting activities, mineral exploration and development, livestock operations, and administrative use of the lands occurs throughout the FRA.

RECREATION OPPORTUNITY SPECTRUM (ROS)

Outdoor recreation opportunities on public lands in the ROS Study Area (see Map 2-6) are mostly in the Roaded Natural Class (79.7 percent of the study area contain types of recreation opportunities that can be described as facility/equipment and vehicle dependent in a natural-appearing, but modified environment). Rural types of recreation opportunities are available on the scattered river tracts in the floodplains of the La Plata, Animas, and San Juan Rivers. Semi-primitive motorized types of recreation opportunities are available in the southern and extreme eastern portions of the study area as well as intermittent islands in the northern portion. Semi-primitive non-motorized types of recreation are concentrated among wilderness resources in the southern portion of the study area. There are no areas that exhibit primitive types of recreation opportunities.

The quality of outdoor recreation is diminished due to problems associated with the availability and distribution of recreation opportunities across the spectrum. A breakdown of ROS Inventory Classes are as follows:

ROS INVENTORY

ROS CLASS		ACREAGE
Primitive (P)	=	0
Semi-primitive non-motorized (SPNM)	=	19,000
Semi-primitive motorized (SPM)	=	180,000
Roaded Natural (RN)	=	901,400
Rural (R)	=	30,000
Urban (U)	=	0

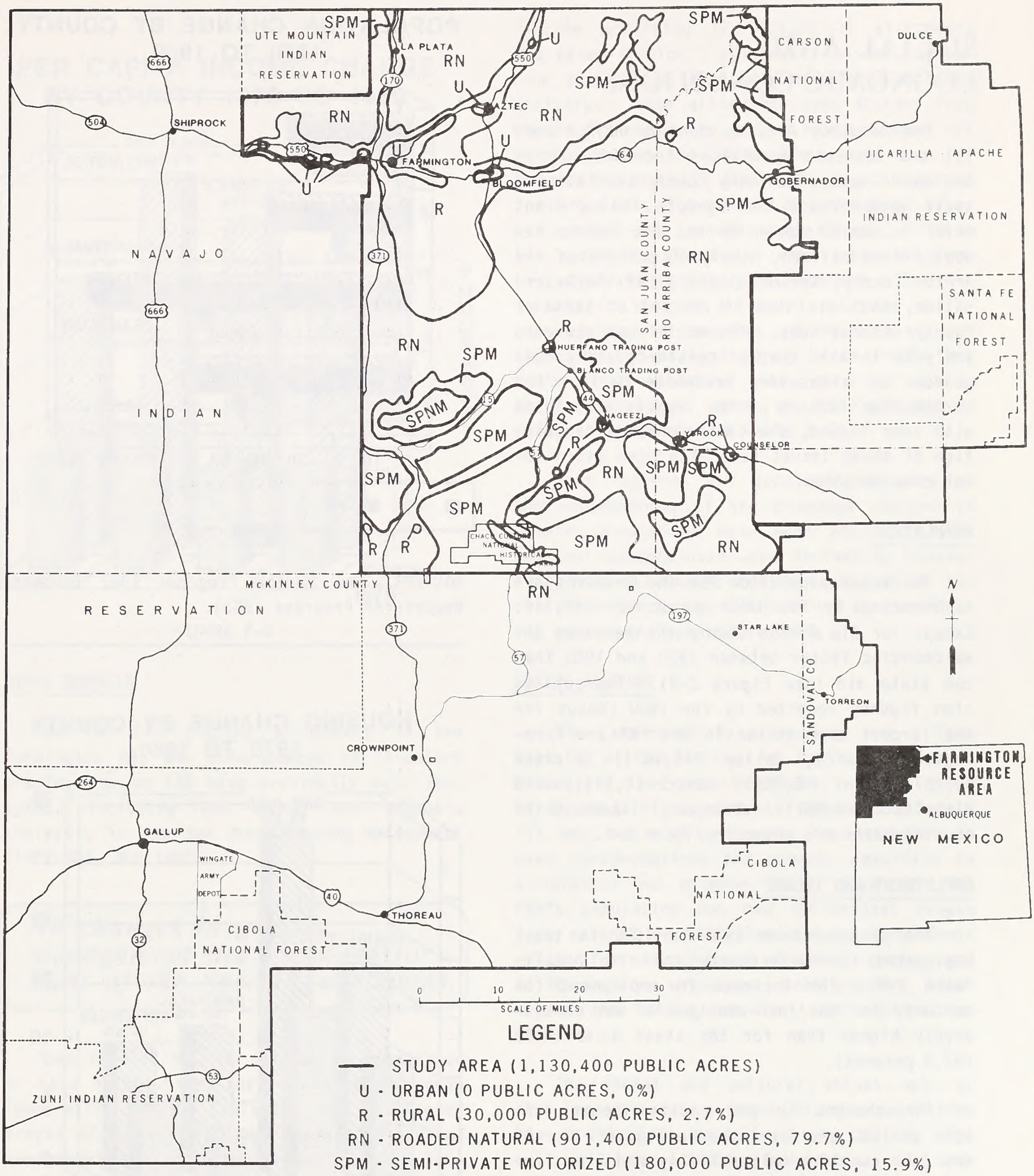
A visual display of the available recreation opportunities is presented in Map 2-6.

As inventoried, portions of the Bisti and De-na-zin Wilderness Areas fall into the semi-primitive motorized ROS Class. This is due to vehicular travel on boundary roads and legal travel necessary for reasonable ingress and egress to private inholdings. It should be noted that unauthorized use of motorized or mechanized travel in wilderness is prohibited by the Wilderness Act of 1964.

RECREATION MANAGEMENT AREAS (RMA)

There are three Special RMAs in the Farmington Resource Area and one Extensive RMA. An RMA is a subunit of the Resource Area as identified by Bureau Manual 8300. The three Special RMAs are the Bisti Wilderness, the De-na-zin Wilderness, and the Simon Canyon Recreation Area and ACEC. The Extensive RMA represents the remainder of the FRA.

FARMINGTON RESOURCE AREA



LEGEND

— STUDY AREA (1,130,400 PUBLIC ACRES)
U - URBAN (0 PUBLIC ACRES, 0%)
R - RURAL (30,000 PUBLIC ACRES, 2.7%)
RN - ROADED NATURAL (901,400 PUBLIC ACRES, 79.7%)
SPM - SEMI-PRIVATE MOTORIZED (180,000 PUBLIC ACRES, 15.9%)
SPNM - SEMI-PRIVATE NON-MOTORIZED (19,000 PUBLIC ACRES, 1.7%)
P - PRIMITIVE (0 PUBLIC ACRES, 0%)

MAP 2-6

RECREATION OPPORTUNITY SPECTRUM INVENTORY

SOCIAL AND ECONOMIC CONDITIONS

The Resource Area as considered for social and economic conditions includes all of San Juan County, McKinley County (excluding a small area around the Ignacio Chavez Grant which is administered by the Rio Puerco Resource Area office), nearly 40 percent of Rio Arriba County, including the Jicarilla Reservation, and less than 10 percent of Sandoval County west of Cuba. The social and economic analysis in this chapter considers all consequences on a Resource Area-wide basis. Due to the significance of the impacts associated with some issues, the consequences of resolution of these issues have also been given local consideration.

POPULATION

The total population for the Resource Area reported by the 1980 census was 142,746. Except for Rio Arriba County the Resource Area counties faster between 1970 and 1980 than the state did (see Figure 2-3). The population figures reported by the 1980 census for the largest communities in the FRA are Farmington (31,222), Gallup (18,167), Shiprock (7,237), Zuni (5,551), Aztec (5,512), and Bloomfield (4,881). Changes in numbers of housing units are shown in Figure 2-4.

EMPLOYMENT AND INCOME

The changes from 1970 to 1980 in total employment for each county are displayed in Table 2-4. The increase in employment (91 percent) for the four-county area was considerably higher than for the state as a whole (57.4 percent).

The changes in per capita income from 1970 to 1980 are displayed on Figure 2-5. Of the four counties only McKinley had a smaller increase in per capita income than the state. The percentage increases in employment for all four counties exceeded their percentage increases in population for the decade from 1970 to 1980. The employment situation has changed significantly since 1980. Many jobs have been lost that relate to energy development.

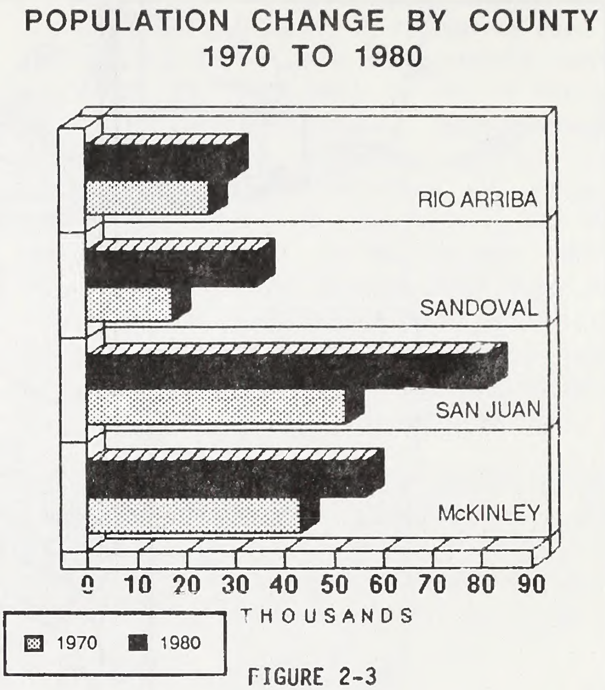


FIGURE 2-3

SOURCE: New Mexico Progress 1982 Economic Report (NM Progress 1983).

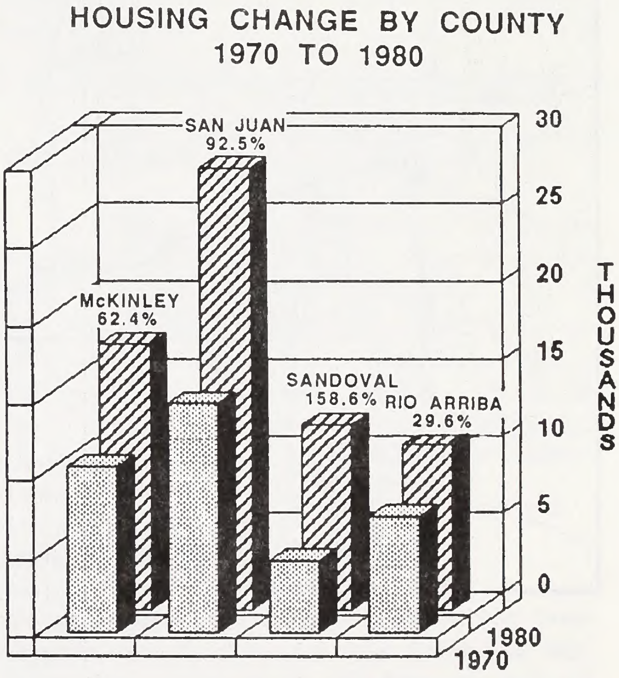


FIGURE 2-4

SOURCE: U.S. Census HC80-1-A33 Tables 1 and 45, HC (1)-B33 Tables 31 and 62.

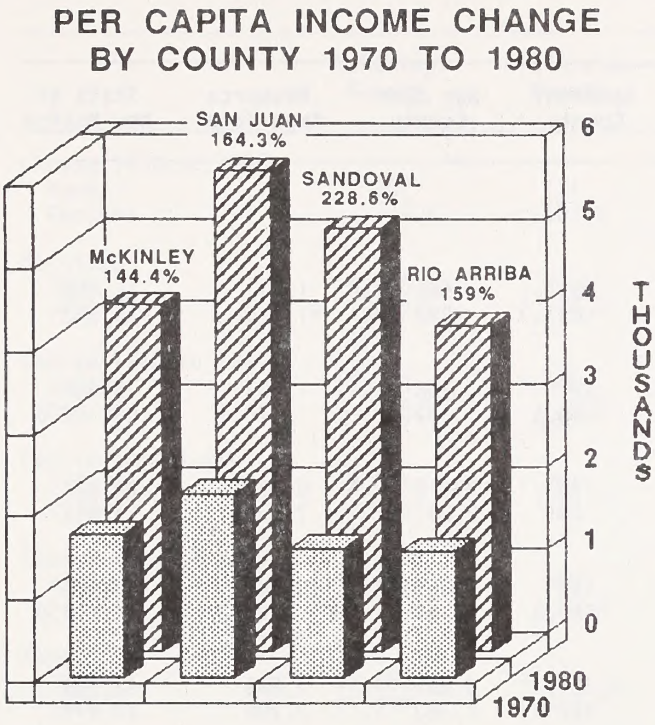

PER CAPITA INCOME CHANGE BY COUNTY 1970 TO 1980

FIGURE 2-5

RANCH BUDGETS

On the 246 grazing allotments in the Farmington RA, the consequences of livestock grazing use on 138 have previously been analyzed, including the social and economic analysis, in the San Juan Grazing Management EIS (USDI, BLM 1980).

> *No changes in grazing management are proposed for most of the Sec. 15 allotments.*

One hundred of the allotments considered in this document are Section 15 leased lands (generally small, isolated, and scattered tracts of pubic land). No changes in grazing management are proposed for most of the Section 15 allotments because no cost-effective improvement in resource conditions would result from implementation of management changes. Since currently available data are inadequate for the development of ranch budgets for these allotments, no further descriptions of these operations are included in this chapter.

The remaining 17 Section 15 allotments and seven Section 3 allotments in the vegetative uses issue area are considered in this analysis. These allotments were divided into groups for analysis and a ranch budget was developed for the sheep groups and one for the cattle groups. The basis for the grouping was first the selective management categorization, and secondly type of use, in that the community allotments were separated from the other "I" category allotments. The diversity in size of allotments and the smallness of numbers requires making more assumptions in the analysis than is desirable but professional judgment was used in making these decisions. Some of the budget-type data are summarized in Table 2-5.

Both regional and local significance of the consequences of the proposed changes in grazing management have been analyzed. The regional consequences were derived by considering the allotments collectively, while local consequences were determined by considering each operation individually.

SOCIAL SETTING

The Farmington Resource Area has a long history of habitation by Native Americans, Hispanics, and non-Hispanics. Each group holds social and cultural values distinctly its own, but each group has been required to make accommodations for others, resulting in a colorful and diverse social setting. The FRA's population has had substantial growth over several decades with some ups and downs related to economic development cycles and shifts between urban and rural growth. Farmington and Gallup are the trade centers for the area.

The social and cultural values held by the large Navajo segment of the population give a distinct social setting to the area and call for the implementation of some unique approaches to social and economic challenges in the FRA.

ATTITUDES

Attitudes expressed by groups and individuals who have been involved in BLM's planning process are as diverse as their social

TABLE 2-4: EMPLOYMENT CHANGE BY COUNTY 1970 TO 1980

	McKinley County	Rio Arriba County	Sandoval County	San Juan County	Resource Area Total	State of New Mexico
Employment Sector						
Agriculture						
1980	125	248	303	584	1,817	16,119
1970	*150	*328	*149	*393	*1,020	*15,352
Change 1970 to 1980,						
Number	68	270	251	208	797	3,465
Percent	45.3	82.3	168.5	52.9	78.1	22.6
Mining						
1980	2,033	137	198	3,810	6,178	28,697
1970	319	136	29	2,247	2,731	17,943
Change 1970 to 1980,						
Number	1,714	1	169	1,563	3,447	10,754
Percent	537.3	0.7	582.8	69.6	126.2	59.9
Construction						
1980	1,110	1,520	1,321	3,895	7,846	42,769
1970	670	802	460	1,363	3,295	23,774
Change 1970 to 1980,						
Number	440	718	861	2,532	4,551	18,995
Percent	65.7	89.5	187.2	185.8	138.1	79.9
Manufacturing						
1980	978	389	1,387	1,697	4,451	37,737
1970	1,049	331	591	1,428	3,399	21,832
Change 1970 to 1980,						
Number	71	58	796	269	1,052	15,905
Percent	6.8	17.5	134.7	18.8	31.0	72.9
Transportation, Communication and Other Public Utilities						
1980	1,416	517	904	4,233	7,070	37,362
1970	983	404	195	1,161	2,743	21,819
Change 1970 to 1980,						
Number	433	113	709	3,072	4,372	15,543
Percent	44.0	28.0	363.6	264.6	157.7	71.2
Wholesale Trade						
1980	457	97	405	921	1,880	17,024
1970	303	49	113	502	967	10,392
Change 1970 to 1980,						
Number	154	48	292	419	913	6,632
Percent	50.8	98.0	258.4	83.5	94.4	63.8
Retail Trade						
1980	2,882	1,272	1,721	4,531	10,406	88,529
1970	2,245	857	461	2,476	6,039	57,484
Change 1970 to 1980,						
Number	637	415	1,260	2,055	4,367	31,045
Percent	28.4	48.4	273.3	83.0	72.3	54.0
Finance, Insurance and Real Estate						
1980	578	238	691	1,212	2,719	26,445
1970	210	117	69	476	872	13,398

TABLE 2-4 (Continued): EMPLOYMENT CHANGE BY COUNTY 1970 TO 1980

	McKinley County	Rio Arriba County	Sandoval County	San Juan County	Resource Area Total	State of New Mexico
Change 1970 to 1980,						
Number	368	121	622	736	1,847	13,047
Percent	175.2	103.4	901.4	154.6	211.8	97.4
Services						
1980	5,590	3,423	3,817	7,636	20,466	167,828
1970	3,852	2,375	1,550	4,094	11,871	147,761
Change 1970 to 1980,						
Number	1,738	1,048	2,267	3,542	8,595	20,067
Percent	45.1	44.1	146.3	86.5	72.4	13.6
Public Administration						
1980	2,341	1,201	1,228	1,995	6,765	43,030
1970	1,496	636	357	1,019	3,508	28,725
Change 1970 to 1980,						
Number	845	565	871	976	3,257	14,305
Percent	56.5	88.8	244.0	95.8	92.8	49.8
Total						
1980	17,603	9,392	12,072	30,531	69,598	508,238
1970	11,277	6,035	3,974	15,159	36,445	322,837
Change 1970 to 1980,						
Number	6,326	3,357	8,098	15,372	33,153	185,401
Percent	56.1	58.9	203.8	101.4	91.0	57.4

*Includes, Agriculture, forestry and fisheries.

Source: U.S. Census, PC(1)-C33 Tables 66 and 123, and PC80-1-C-33 Tables 69 and 178.

TABLE 2-5: NAVAJO LIVESTOCK BUDGET

Costs Per Head:

Feed - Grazing Permits (21.33 acres/sheep unit year long @ $.07/acre)	$1.50
Supplement 60# bale for $3.00 or 5¢/lb. x 15#	.75
Veterinarian	1.70
Trucking (60 miles @ 25¢ = $15 for 10 head)	1.50
Other Miscellaneous	1.50
Total	**$6.95**

Returns Per Head:

High Production: Lamb 65# @ 55¢ = $37.75 x .60 (60% lamb crop)	$21.45
Cull Ewes 100# @ 35¢ = $35.00 x .20 (20% replacement)	7.00
Wool + Incentive 7# @ 55¢ = $3.85 = (3.85 x .80) = $3.08	6.93
Total	**$35.38**
Low Production: Lamb 60# @ 55¢ = $33.00 x .60 (60% lamb crop)	$19.80
Cull Ewes 100# @ 20¢ = $20.00 x .20 (20% replacement)	4.00
Wool + Incentive 7# @ 50¢ = $3.50 x .80 = $2.80 + $3.50	6.30
Total	**$30.10**

High Net Return = $35.38 - $6.95 = $28.43 or	$28.50
Low Net Return = $30.10 - $6.95 = $23.15 or	$23.00

values. Most of these attitudes have been in favor of a continuation of the use of the public lands already being made by that person or group. All issues had both support and opposition.

Special management areas are generally supported for the protection they provide for cultural resources, recreational opportunities, and other resources. Concern was expressed that SMAs might restrict present uses.

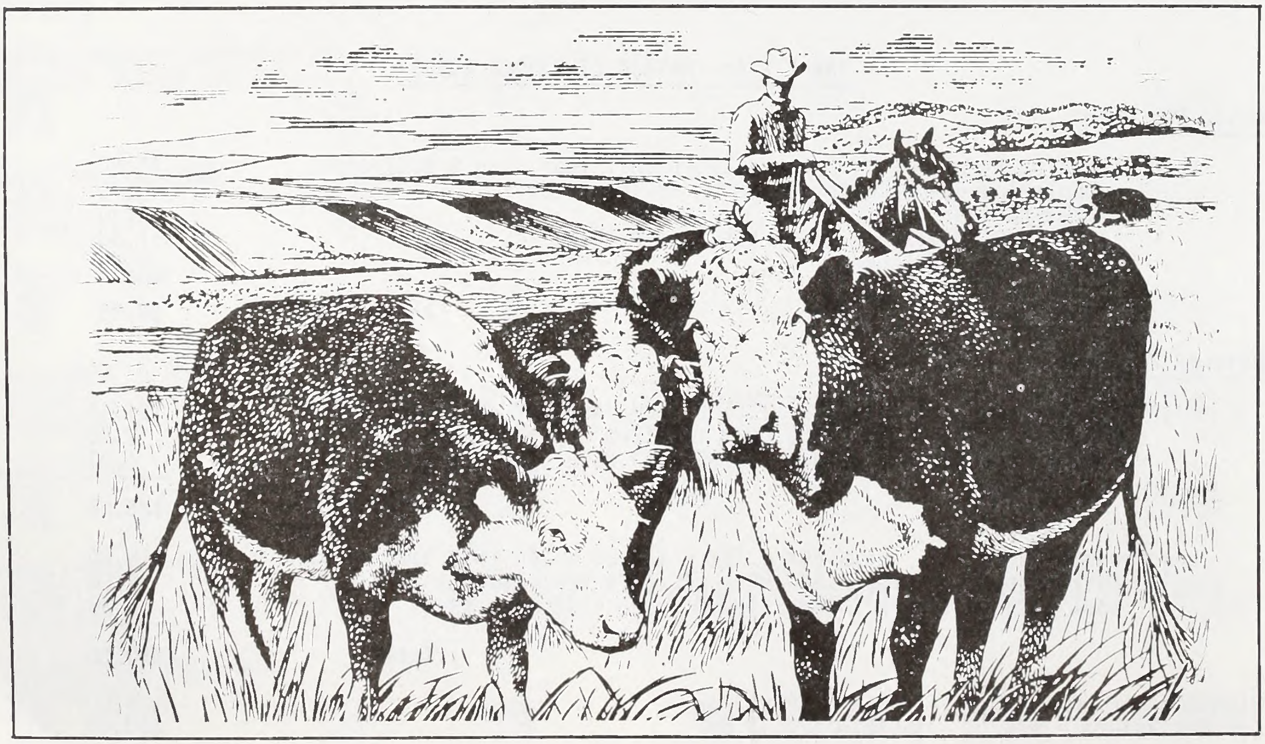
'Open' and 'Limited' designations were opposed by some ranchers.

The transportation issue (ORV designation) was highlighted because areas would be designated for recreational ORV use and ORV events. Designations were also supported because protection for conflicting resource uses such as livestock management would be provided. "Closed" and "limited" designations were opposed by some ORV recreationists if ORVs were restricted from areas presently used and readily accessible. "Open" and "limited" designations were opposed by some ranchers if areas where ORV use conflicts with grazing were left open to ORV use.

The attitude of the local population toward land ownership adjustments is not fully known. However, there seems to be general support for maintaining a land base for general public use. There is strong interest among the Navajo people and their leaders in acquiring all lands that are available through the land ownership adjustment issue.

Fuelwood supply is of concern to those who have had access to a free supply of heating and cooking fuel for many years and now find that fuelwood has become expensive and that the supply is much smaller and less accessible than it used to be.

Local attitude toward coal leasing seems favorable, perhaps because some individuals burn coal and several are employed in coal production. Many people not immediately within the area express concern that mining could destroy other significant resources. The Navajo people have concerns about mining coal because it destroys the grazing and because their cultural and traditional values are contrary to digging up the earth. Even with these concerns a number of the Navajo people work the mines and the Tribe continues to negotiate contracts for the production and use of the coal resources.



Environmental Consequences

Chapter 3

CHAPTER 3

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter provides the scientific and analytic basis for the selection of the preferred alternative. The significant impacts anticipated from the implementation of each of the alternative plans are discussed. Both the beneficial and adverse impacts affecting the environmental components described in Chapter 2 have been analyzed. If no impacts to an individual program are described as a result of resolving a particular issue, it is because none are anticipated. See Table 1-12 for a summary of impacts by alternative.

An assumption section has been provided to establish the foundation for impact analyses and provide important information concerning the current situation and anticipated future developments as they relate to the issues. Statements are based on the current situation and continuing management guidance. Assumptions are based on professional knowledge and available literature.

ASSUMPTIONS

GENERAL

The long term for this document is considered to be 20 years and beyond. Twenty years is considered the life of the plan. The short term for this RMP is considered to be about five years.

Each RMP alternative is reasonable, achievable, implementable, and enforceable. Existing laws, executive orders, and policy will be implemented in all alternatives. The scope of (RMP) land use planning and impact analysis is confined to public lands within the Farmington Resource Area.

ISSUE NO. 1:
LAND OWNERSHIP ADJUSTMENTS

Past BLM policies of land management do not work well in the southern portion of the FRA due to the scattered and isolated nature of the lands, unauthorized occupancy problems, and congressional actions which have resulted in the transfer of thousands of acres out of BLM administration.

> ***Land exchanges will be based on equivalent value.***

Consolidation of public lands through retention, acquisition, and exchange will create more efficient and economical public land management. Lands not specifically identified for disposal will be retained in public ownership in compliance with Section

102(a)(I) of the Federal Land Policy and Management Act (FLPMA). Land exchanges will be based on equivalent value, not on equal acreage, and will be in the public interest.

A land ownership adjustment action can be reversed, however for the purposes of this document such actions are considered irreversible.

Large scale or rapid exchange of public lands in the exchange zones are not likely. These actions should be considered a long-term project lasting the entire life of this RMP.

In some cases the costs of cultural resource mitigation may be prohibitive. In those cases resolution will consist of either dropping the exchange proposal or completing procedures to determine adverse effect under 36 CFR 800.

ISSUE NO. 2: HOME USE FUEL SOURCES

It is assumed the increasing public demand for fuelwood as evidenced by the number of permits granted over the last 10 years will continue. Coal for domestic uses of home heating and cooking near Native American communities that have traditionally used this source will continue to be needed.

Most fuelwood sources exist in the northern portion of the Resource Area and the Lindrith area and consist of pinyon and juniper woodland. Scattered unauthorized fuelwood gathering is expected to continue due to the large amount of these woodland resources and the lack of funding and personnel to adequately patrol the FRA.

ISSUE NO. 3: SPECIAL MANAGEMENT AREAS

There is a large diversity of natural and cultural resources within the FRA and it is important that a cross-section of each be protected and preserved in existing condition. It is assumed mineral activity and development of public lands will continue to be an important use of lands which can negatively affect natural and cultural values. Special attention above day-to-day management is needed to protect certain sensitive values. Future intensive inventories for cultural resources and for threatened or endangered species in the FRA may uncover values that will need protection through SMA status.

Special attention above day-to-day management is needed to protect sensitive values.

In general public lands are expected to incur an overall increase in visitor use as recreational values become more visible and also as spill-over use from primary destinations such as wilderness areas, national parks and monuments, Navajo Reservoir and developed campgrounds occurs. As population influx increases from the sunbelt state movement, recreational pressures on public lands will increase from in-state and out-of-state tourism and perhaps from lower fuel prices. In-state visitors generally travel less than two hours to a destination to participate in outdoor recreation activities.

High-density raptor roosting areas will possibly be affected to a greater extent by increased visitor use unless given special management attention. Increased uses on public lands will continue to place pressure on sensitive plant habitats. Expected increased demands for access to river tracts may result in increased impacts to riparian habitat.

ISSUE NO. 4: COAL LEASING SUITABILITY ASSESSMENT

The major land use planning decision concerning the coal resource is the identification of areas acceptable for further consideration for leasing.

This RMP delineates coal tracts which will be the focus of future activity planning. The RMP decision will not be a determination of how much coal will be leased, but rather how much coal will be acceptable for further consideration for leasing following application of the four land-use planning screens for coal. Anticipated impacts are described in the San Juan River Regional Coal EIS (USDI, BLM 1984a), which provides a detailed analysis of coal resources and potential impacts of coal leasing. Due to the large amount of information presented in this document, there has been no attempt to repeat that information in this RMP. The specific impacts of leasing coal will be further analyzed during activity planning.

Although the present market demand for coal is low, for the purpose of this plan it is assumed that all tracts carried forward for competitive sale will be sold. However, on-the-ground mining activities will not occur in the short-term future.

ISSUE NO. 5: TRANSPORTATION

Easements will need to be acquired to ensure both public and/or management access to public lands lacking legal access.

Off-Road Vehicles (ORVs), their use and associated impacts are largely misunderstood and often stereotyped. ORV use is defined as cross-country travel (off roads and trails) or as off-the-road vehicular travel. Motorized vehicle travel that occurs on the road, whether or not the vehicle is capable of off-the-road travel, is referred to as off-highway vehicle (OHV) use.

Some off-the-road vehicle travel occurs with permitted activities such as oil and gas exploration.

Nearly all motorized vehicle use in the FRA can be described as OHV use. Only incidental off-the-road vehicular use is known to take place throughout the FRA. Exceptions include intensive ORV recreational use in localized areas near population centers and near highways. Some off-the-road vehicle travel occurs with permitted activities such as oil and gas exploration as well as other activities including big game hunting and ranching. Impacts are mostly confined to localized areas adjacent to population centers. Consequently, these impacts are often on private lands.

An estimated 10,000-mile road network in the FRA, coupled with future road construction associated with mineral development, ensures access to most destinations on-road. The soil types, terrain, distance from major population centers and the lack of convenience facilities in the FRA are not conducive to attracting widespread ORV recreational use.

ISSUE NO.6: VEGETATIVE USES

Current uses of private and state lands (if these lands are currently being used for grazing) would remain essentially the same. These lands are being used primarily for livestock grazing or for activities associated with grazing operations.

Impacts on vegetation are described in terms of the entire rangewide resource with consideration given to localized changes. Variations in impacts among different pastures are not enumerated.

The BLM would verify the level of impacts and monitor and evaluate grazing management systems prior to and after implementation so necessary adjustments in those systems not meeting multiple use objectives can be made. Monitoring of key forage species, watershed conditions, and wildlife populations would be done annually. Wildlife would continue to graze pastures that are being rested from livestock grazing. Since information concerning actual livestock use has not been collected, an exact amount is not known. Estimates by BLM specialists are that actual use is approximately equal to average licensed use although a few operations probably vary from this amount to a small extent each year.

Reductions in licensed use would result in proportionate reductions in actual use.

Technical references demonstrate that there is considerable variation in the response of vegetation and other resources to grazing and wildlife management programs. Scientific knowledge is not presently available to assess long-term impacts to the fullest extent. Techniques available for predicting impacts are not precise, but do provide an indication of the type and general magnitude of expected changes. Although impacts are stated in quantitative terms where possible, the numbers given should be taken as an indication of approximate, not absolute, amounts of change.

Except for social and economic conditions, assessments for all resources were based upon grazing adjustments, vegetation treatments, and construction of developments related to forage AUMs produced on the public lands of all allotments.

ISSUE NO. 7:
RIGHT-OF-WAY CORRIDORS AND WINDOWS

The industry and public demand for rights-of-way across public land will continue at or above the present level.

Lack of consolidated public lands in the southern portion of the Resource Area precludes the use of ROW corridors. However, numerous de facto corridors located primarily in the northern portion of the Resource Area will continue to be utilized in future right-of-way permitting.

ALTERNATIVE A: CURRENT MANAGEMENT (NO ACTION)

MINERALS

This alternative provides for continuing management at approximately the same level of resource use as is presently occurring.

Under current management 73,223 public acres located almost entirely in McKinley County could be sold or exchanged. This action could affect about five percent of the total lands available for future oil and gas exploration and development, locatable and saleable mineral exploration and development, and might altogether preclude surface coal mining on certain lands because of the surface owner consent provisions of the Surface Mining Control and Reclamation Act (SMCRA, PL 95-87). This action would create a situation where the surface and subsurface are owned by different entities, which could complicate mineral exploration and development. However, the acreage in question is not especially valuable for any of the minerals and the tracts are isolated. Existing mining claims would not be disposed of.

Mineral development has been excluded on 23,668 federal acres of designated wilderness and suspended (pending Congressional action) on 9,283 federal acres within the Fossil Forest Research Natural Area and the Ah-shi-sle-pah Wilderness Study Area. About five percent of the strippable coal resources on approximately one percent of federally owned acres are affected.

Under this alternative, no new lands would be considered for coal leasing. The 39 existing coal leasing tracts, comprising approximately 36,000 federal acres and 2.4 billion tons of coal (1.6 billion federal tons), would be carried forward for further consideration for leasing. In addition 26 coal Preference Right Lease Applications (PRLAs), comprising approximately 75,500 acres and 2.3 billion tons of coal, would be carried forward for nondiscretionary adjudication and potential leasing depending on the results of economic analysis.

The effects of this alternative on the oil and gas program are presented in Table 3-1. Approximately 85 percent of the acreage with federal oil and gas in the FRA would remain open to development. An additional 12 percent would be open to development under certain stipulated restrictions (see Appendix P).

TABLE 3-1: ACRES OF FEDERAL OIL & GAS IN MANAGEMENT CATEGORIES VS. RESOURCE POTENTIAL (ACRES ROUNDED TO NEAREST THOUSAND)

Management Categories	Low or No Potential	Moderate Potential	High Potential	Unknown Potential	Total
Open	0	313,000	1,322,000	0	1,635,000
*Open with constraints					
NSO	2,000	28,000	19,000	0	49,000
Seasonal	0	11,000	104,000	0	115,000
Special values	0	48,000	19,000	0	67,000
**Closed (Discretionary)	0	4,000	19,000	0	23,000
***Closed (Non-discretionary)	0	39,009	1,000	0	40,000

*Open to leasing with special stipulations (No Surface Occupancy, seasonal restrictions, or surface operation plan to protect special values i.e., recreation, cultural, T/E species habitat).

**Closed due to planning decisions i.e. ACEC designations with management prescriptions which require no mineral development.

***Closed due to law, executive orders, or similar actions, e.g. wilderness.

SUMMARY

The main potential long-term impact would consist of conflicts associated with the creation of up to 73,223 additional acres of split estate lands. Only three percent of the Resource Area would be closed to oil and gas development.

RANGELAND

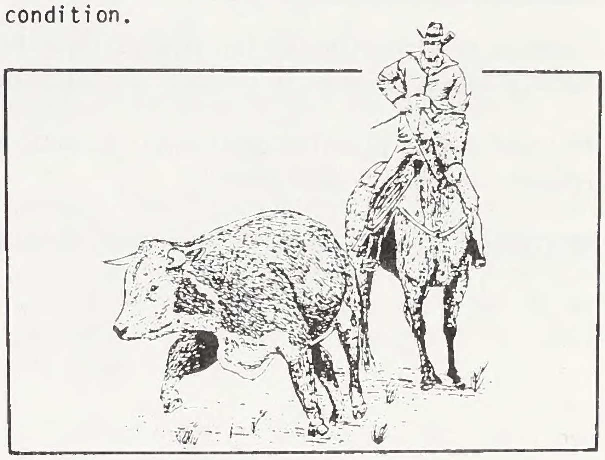
Under this alternative, 73,223 acres could be transferred out of BLM administration. Those allottees on the public lands identified for land ownership adjustments would lose their grazing privileges (following a two-year notification or expiration of the term, permit, or lease, whichever is longer) if the adjustments were consummated. Generally, the impacts on these allottees would be slight since the public lands constitute only a small part (usually less than 30 percent) of their total livestock operations. Specific impacts to individual allottees are difficult to determine because the affected allotments are either Taylor Grazing Act Section 15 allotments that are not billed on the proportion of federal lands contained within them or are allotments covered by the MOU the BLM has with the BIA and the Navajo Tribe and are administered by the BIA. If the lands are offered for exchange to other land management agencies, the impacts could be mitigated if these agencies continued to grant livestock grazing use to the allottees.

In the long term, it would be anticipated that up to 9,153 Animal Unit Months (AUMs) of licensed use would be transferred out of BLM administration as a result of land ownership adjustments. Impacts to affected allottees are discussed above.

In the short term, livestock forage production would decrease as a result of surface disturbance associated with fuelwood harvest. In the long term, increased production of livestock forage would result from fuelwood harvest due to decreased competition from woody species. However, no significant short- or long-term effect on the range resources and no changes in livestock grazing use would be authorized as a result.

Under this alternative, motorized vehicle use is "closed" or "limited" on approximately 41,600 public acres. Vegetative vigor, productivity, and overall ecological condition could improve slightly over the long term because of reduced vehicular impacts.

Under this alternative 1,466,813 acres would be designated "open" to motorized vehicle use. In the short term, no meaningful impacts to the range resources would be associated with this designation. In the long term, however, increased off-the-road vehicle travel could have localized impacts on vegetative vigor, productivity, and ecological condition.



Impacts to rangeland resources from coal mining activities would be the loss of forage and associated grazing. While the actual amounts would depend on which of the 39 competitive tracts carried forward under this alternative were actually mined, up to 35,555 public acres of forage (6.1 percent of those within the issue area) and 5,926 federal AUMs (6.3 percent of the preference AUMs in the issue area) would be lost. A maximum of 30 allotments (29 percent of those in the issue area) and 246 individuals (11 percent) would lose part or all of their grazing privileges. These impacts would be long-term, lasting until the tracts are reclaimed and former grazing levels restored.

No changes in current grazing management and no short- or long-term adjustments in livestock AUMs would be proposed in the vegetative uses issue area. Portions of four "I" allotments, involving 28,192 acres (6.8 percent of the total area considered), would remain in unacceptable ecological condition.

For the short term, it is assumed that livestock grazing use would continue at present levels. For those allotments that were inventoried, present level is considered to be the average of the last five years of use or 59,673 AUMs (four percent below current allowable livestock grazing use).

Impacts to range resources under these levels of grazing management would be negative to the "I" allotments, because unacceptable ecological conditions would remain.

SUMMARY

No changes in ecological condition would be expected on a minimum of 62 percent of the allotments in the issue area. Impacts to range resources would be negative to "I" allotments, and to allotments affected by coal mining activities. While short-term negative impacts would occur as a result of the resolution of the home use fuel sources issue, no major long-term impacts to rangeland resources would occur. The resolution of the transportation and land ownership adjustments issues could have some amount of long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment issue, but would be mitigated by reclamation after mining is completed.

LANDS

The San Juan and Chaco Management Framework Plans (MFPs) identified 73,223 acres of public lands for disposal. The impact of exchanging or selling 73,223 acres of public lands is positive because the BLM will be exchanging parcels which are difficult or uneconomical for the Bureau to manage. There are 6,078 acres of state and private lands targeted for acquisition by the San Juan MFP. These lands, identified for their big game habitat values, are located in the Navajo Reservoir area. The impacts of acquiring these lands would include improved control over surface-disturbing activities and acquisition of critical wildlife habitat. General impacts of disposal and acquisition are summarized in Table 3-2.

There are 6,078 acres of state and private lands targeted for acquisition by the San Juan Management Framework Plan.

The public lands offered for sale or exchange by this alternative are unlikely to produce large-scale and/or rapid land ownership adjustments because they are small isolated parcels which are often landlocked. Furthermore, some of the most valuable lands identified for disposal by sale or R&PP have already been selected.

The primary negative impact in most land exchanges can be the resource management problems created by split ownership of the surface and subsurface estates. However, in the long term the positive impacts of completing land exchanges in the southern portion of the Resource Area far outweigh the negative impacts. It would allow for the sale or exchange of lands which, because of their location or character, are difficult for the BLM to manage. It would also enable the BLM to consolidate and improve the manageability of other public lands.

No right-of-way (ROW) windows are designated under existing management plans. Adverse environmental impacts could include potential conflicts with development of public coal resources and the proliferation of ROWs.

SUMMARY

Land ownership adjustments could occur on approximately five percent of the total public lands in the Resource Area which would result in overall beneficial impacts to public land management. Creation of split estate lands due to adjustments could create moderate impacts on the granting of ROWs and approvals for the development of mineral resources on those lands.

TABLE 3-2: IMPACTS OF LAND OWNERSHIP ADJUSTMENTS

POSITIVE	NEGATIVE
IMPACTS OF ACQUIRING NON-PUBLIC LANDS	
Improves resource values of existing public land.	Can displace existing authorized users if current use conflicts with management's plan for the area.
Can provide improved public access to important resource values.	Substantial costs in processing cases.
Improves manageability of existing public land by eliminating private and state inholdings with potential for conflicting uses.	May affect the tax base of one or more counties.
Improved manageability can decrease conflicting interests.	May sacrifice one or more private interests to benefit other public administrative costs.
IMPACTS FROM SALE	
Potential for placing land in such uses as agricultural, commercial, or residential.	Potential loss of some resource values, such as wildlife and recreation.
One-time payment to treasury.	Loss of future revenues from land use authorizations.
Decreased management costs for BLM.	Loss of future exchange potential as disposable tracts are depleted.
Can provide additional land for residential development in urban areas.	Loss of Payments in Lieu of Taxes (PILT).
Opportunity for landowners (ranchers, etc.) to consolidate their holdings.	Potential economic strains on person who currently uses land but cannot afford to purchase it.
Increase in local property tax revenues.	Possible additional encumbrance and development costs for mineral right holders as a result of split estate.
IMPACTS FROM EXCHANGE	
Opportunity to consolidate land ownership patterns and reduce management costs.	High cost of processing case work.
Land exchanges would result in increased resource values and public benefit.	Creation of split estate lands, if minerals are not transferred.
No significant reduction in net federal land acreage.	
Land transfers can take place without the burden of purchase price on the non-federal recipient.	
R&PP IMPACTS	
Supplies lands for public needs.	Loss of higher valued lands near urban areas.
Decreased management costs for the BLM.	Cost of processing the R&PP application.
Utilizes lands for public needs (schools, churches, administrative sites, etc.).	Loss of future revenues from land use authorizations.
	Loss of future exchange potential because highly desired tracts may be selected under the R&PP Act.

FORESTRY

Unauthorized fuelwood harvest would continue due to the large area involved and the lack of personnel to conduct patrol and inspection. Short- and long-term impacts to fuelwood resources under this alternative could include overcutting (primarily near population centers), damage to woodland sites and stands, slash and litter left at trespass sites, and possible increases in illegal cutting on adjacent private lands. In the long term, this would lead to a vegetative shift from pinyon-juniper woodlands to a shrub/grassland type where intensive unregulated cutting occurs. Present funding and personnel limitations in the forestry program have not allowed any reliable estimate of the amount of unregulated cutting.

> *With a 200-year rotation age, only 250 acres could be harvested each year.*

Only about 45 percent of the approximately 600,000 acres of woodlands in the Resource Area can be harvested on a sustained yield basis. On these lands, (270,000 acres) about ten cords of fuelwood per acre are available for harvest. With a 200-year rotation age, only 250 acres could be harvested each year and still remain on a sustained yield schedule of about 2,500 cords per year.

Resource Area records of cords of fuelwood authorized for harvest between Fiscal Year (FY) 75 and FY85 are summarized in Figure 3-1. The dramatic drop in authorized harvest after FY82 is the result of the elimination of free use permits. Public permits are presently sold primarily for collection of dead and down fuelwood. It is not known if the amount of wood collected actually equals the amount authorized for removal. Also, there is presently no estimate of unauthorized fuelwood harvest. Much of the dead and down wood available to the public is provided by pinyon and juniper trees removed from chainings, new roads, oil and gas well pads, and pipeline rights-of-way. It is not known if the supply of dead and down wood will continue to meet the demand.

CORDS OF WOODLAND PRODUCTS
SOLD IN FARMINGTON RESOURCE AREA

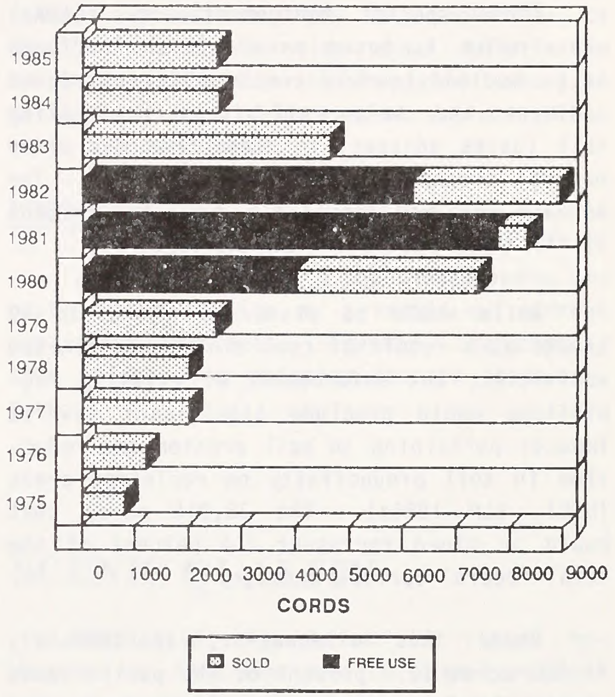


FIGURE 3-1
(Free Use=Permits issued without charge).

SUMMARY

Continuation of present low-level forest and woodland management practices may result in continued unauthorized fuelwood cutting and possible long-term reduction in areas of woodland forest types. About 2,500 cords of fuelwood per year could be harvested on a sustained yield basis in the Resource Area.

SOILS

Under this alternative, 73,223 acres could be transferred out of BLM administration. This action would also result in transfer of long-term soil improvement and erosion control structures. Since lands will primarily be exchanged or sold, the Bureau would be compensated for their appraised value. If the structures are maintained by the party or agency acquiring the lands, no impacts to the soils resource would occur. If the structures are not maintained, sediment and salt loads to lower basin users would increase.

Those special management areas (SMAs) whose value is based on erosional landforms (e.g. badlands) would continue to contribute sediment and salts off-site. Controlling soil losses adjacent to these SMAs may alter natural processes within their borders. The acreage involved represents about two percent of the total public surface acreage.

Soils would be disturbed on up to 39 tracts as a result of coal mining and related activities, but enforcement of existing regulations would preclude significant adverse impacts pertaining to soil erosion and reduction in soil productivity on reclaimed areas (USDI, BLM 1984a). The 35,915 acres that could be mined represent 2.4 percent of the total federal surface acreage.

Under this alternative, approximately 41,600 acres (2.7 percent of the public lands within the Resource Area) would be designated "closed" or "limited" to off-the-road vehicular travel, thereby providing protection for soil resources. The remainder of the public lands (approximately 1,467,000 acres) would be designated "open" to off-the-road vehicular travel. For these lands damage to soils could occur; however emergency closures can be initiated where potential damage is shown to be significant. Currently, little off-the-road vehicle activity has been documented away from population centers. Gullying and wind erosion would increase where vegetative cover is reduced. Where loss of soil occurs, the damages are considered irretrievable and irreversible.

Under this alternative, no changes in grazing management are proposed. As a result, soil factors influencing ecological condition would remain unchanged (or worsen on poor condition lands.) Of the lands inventoried for ecological condition, 13.6 percent were in the poor category. The sediment yields and soil erosion occurring on these lands would continue at the present rate or could increase. The remaining inventoried lands were in either fair (68 percent) or good (12.7 percent) ecological condition and, except for localized areas, no major adverse impacts to soils were documented.

Impacts to soils from off-road vehicle travel can be mitigated by emergency closure.

SUMMARY

Land ownership adjustments would not result in significant impacts to soils resources if soil improvement and erosion control structures are maintained. Natural erosion would continue within badlands. Coal mining would result in significant long-term disturbance to 2.4 percent of the soils in the Resource Area, but the impacts would be mitigated by reclamation efforts. Impacts to soils from off-the-road vehicular travel can be mitigated by emergency closure. Sediment yields and soil erosion would continue at the present rate or could increase on grazing lands in poor ecological condition.

HYDROLOGY

Under this alternative, all public lands in the Resource Area would be designated "open" to off-the-road vehicle travel, except the 41,637 acres designated as "closed" or "limited" on the ORV Designation Register. This allows 97 percent of the Resource Area to be "open" for off-the-road vehicular travel. In the short-term, impacts to water resources would not measurably change. Increased off-the-road vehicle travel could result in the creation of new trails and greater surface disturbance within the Resource Area. Subsequently, peak runoff rates would increase in localized areas and stream channel stability would deteriorate as scour and back erosion increase in magnitude. Most importantly, sediment and salt discharges would increase as off-site impacts. Overall, with the exception of localized areas, impacts of off-the-road vehicle travel have not been documented on public lands.

Impacts to surface water and ground water quality and quantity as a result of coal mining activities are addressed in the San Juan River Regional Coal EIS (USDI, BLM 1984a). Generally, effects to the water resources are dependent upon the total acreage mined. For this alternative the maximum federal acreage would be 35,915 acres. This is 2.4 percent of the total federal surface in the Resource Area.

Potential impacts to surface water resources are not as important as impacts to ground water resources.

A continuation of the present livestock grazing practices throughout the Chaco Rangeland Management Area would result in adverse impacts to water resources. Peak runoff rates would remain high especially on range sites in poor ecological condition (13.6 percent of inventoried acreage) with no improvement to on-site utilization of water. Sediment and salt yields would increase in the long term as a result of accelerated erosion rates and poor vegetative cover, resulting in continued off-site water quality impacts, particularly to the San Juan Basin.

SUMMARY

Localized long-term impacts to water resources could occur on lands where off-the-road vehicular travel is not restricted. Peak runoff rates would remain high and sediment and salt yields would increase under the current levels of grazing management, resulting in long-term significant impacts.

AIR QUALITY

Available data in existing Environmental Impact Statements indicate that no overwhelming impacts to the quality of the air have occurred due to current management practices. Emission standards as defined by law have been exceeded in localized areas for short periods of time, however this is not indicative of significant impacts in the FRA. Due to the relatively high levels of emissions from mineral resource development and processing as well as dust levels inherent to soil types and the lack of vegetation in the FRA, air quality is lower than in areas lacking these conditions.

Collection and monitoring of air quality related values in Class II, Prevention of Significant Deterioration areas (Bisti and De-na-zin Wilderness Areas) may be needed to mitigate effects of management actions related to air resources.

SUMMARY

In effect, there is no overwhelming impact to air quality as a result of current management practices. However, the cumulative effect from emission sources is a concern.

SCENIC QUALITY

Cumulative degradation of visual resources is inherent due to high-level resource production activities. Nearly 90 percent of the Resource Area is in Visual Resource Management (VRM) Classes III or IV (the other 10 percent falls into VRM Class I or II). The extensive road network, rights-of-way (pipeline and transmission lines), mineral production facilities and other development add up to an overall decreased level of scenic quality. Impacts of management decisions are mitigated on a case-by-case basis through the environmental compliance process. Any visual changes in the characteristic landscape that meet VRM Class objectives are not considered significant effects.

The lack of additional SMA designations that prescribe the protection of areas that exhibit high scenic quality and high visual sensitivity would result in the long-term reduction of scenic quality in the Resource Area.

Production of mineral resources adjacent to Wilderness Areas which are managed for VRM Class I objectives may result in negative impacts to wilderness characteristics. Mitigative measures such as topographic screening and using environmental colors could be used to reduce impacts.

Public lands now undesignated for off-the-road vehicular travel do not significantly affect the overall scenic quality of the Farmington Resource Area because of the lack of damage from this type of use.

SUMMARY

There may be a trend of visual resource degradation commensurate with the level of natural resource development, but mitigative measures would be used to reduce negative impacts. The majority of public lands have incurred moderate to high long-term visual contrasts in the characteristic landscape which has resulted in decreased scenic quality in the FRA.

Public lands now undesignated for off-road vehicle travel do not significantly affect overall scenic quality of the FRA.

WILDLIFE

WILDLIFE HABITAT

Acquisition of the 6,078 acres on Middle Mesa identified in the San Juan MFP (USDI, BLM 1979c) will provide positive benefits for big game habitat improvement projects in the area by consolidating ownership of mule deer and elk winter range. The 73,223 acres identified for disposal in the Chaco MFP (USDI, BLM 1981) contain habitat for approximately 175 non-game species. Although pronghorn antelope and mule deer are occasionally seen in this region these lands are, for all practical purposes, devoid of significant big game populations. The scattered nature of land ownership effectively precludes any meaningful habitat improvement practices. Because of this situation, disposal of these lands would be insignificant to the wildlife program.

Present restrictions limiting fuelwood collection to only dead-and-down pinyon or juniper provide for the retention of standing snags. This is beneficial as snags can provide nesting and feeding habitat for a variety of non-game species. Seasonal restrictions reduce disturbance to wintering big game herds.

Previous planning efforts identified Jones Canyon, Negro Canyon, Rattlesnake Canyon and Carracas Mesa as pending special management areas. Providing special management in these areas for wildlife would benefit wintering big game populations residing on all four areas.

Impacts to wildlife from the coal issue have been presented in the San Juan River Regional Coal EIS (USDI, BLM 1984a). The main impacts of carrying forward 39 tracts would be the potential disturbance of two ferruginous hawk and two golden eagle nest sites and mining of up to 300 acres of crucial deer and elk habitat near the Colorado state line. These would be long-term impacts, but would be mitigated with proper activity planning as required by existing regulations. Any assessment of impacts on raptors is speculative as field conditions can change in the time prior to actual mining. The most likely impact is that raptors nesting in or near mining activities will move their nest sites away from the area of immediate disturbance. There is no indication that potential alternate nest sites are lacking in the coal area.

Assessment of impacts on raptors is speculative as field conditions can change in the time prior to mining.

Impacts of current grazing levels on wildlife habitat in the former San Juan Planning Unit have been addressed in the San Juan Grazing Management EIS (USDI, BLM 1980). Overall, this EIS indicates long-and short-term positive impacts to wildlife. The proposed action in the San Juan Grazing EIS indicates that forage production for wildlife is expected to increase from approximately

5,800 AUMs to 16,600 AUMs by the year 2000. Commensurate with the increase in forage for big game, the EIS assumes that cover and food for other game and non-game species will also increase.

The main wildlife conflict is not with off-road vehicle travel but with the many existing authorized roads in the FRA.

The transportation issue would have little impact on wildlife habitat. The main wildlife conflict is not with off-the-road vehicular travel but with the large number of existing authorized roads in the FRA. Little off-the-road vehicle activity has been observed away from population centers. However, there are few important wildlife areas in the FRA that do not contain numerous oil and gas well service roads. The impact of such easy access with the resulting potential for human disturbance and poaching has not been measured but is believed to be an important factor affecting big game populations.

THREATENED OR ENDANGERED SPECIES

There are no impacts to listed threatened or endangered species due to current management practices. Present management guidance provides for consideration of threatened or endangered species in all proposed actions. However, failure to designate bald eagle wintering areas or sensitive plant habitat as SMAs will not facilitate positive actions to improve habitat conditions for these species.

SUMMARY

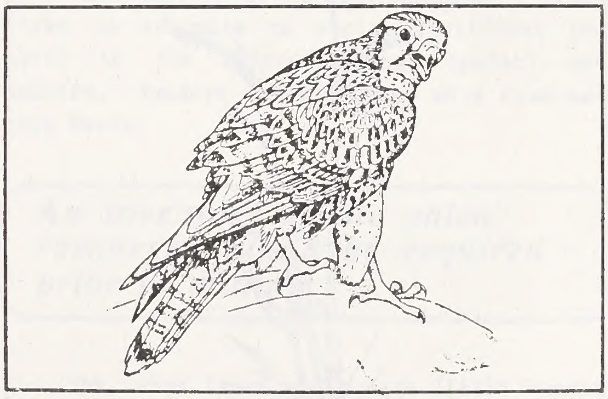
Continuation of present management will not result in short-term changes in wildlife habitat or populations. The BLM will continue to meet its legal responsibilities under the Endangered Species Act. A possible long-term negative impact of this alternative could be the continued decline of candidate or sensitive plant species, due to a lack of special management for these species.

WILDERNESS

Management of two Wilderness Areas and one Wilderness Study Area (WSA) would continue. The Bisti Wilderness Management Plan (USDI, BLM 1986) prescribes the future acquisition of adjacent state Section 32, T.24N., R.13W. (600 acres) once Gateway Mine is closed and the land reclaimed. This land would be used to control access to the Bisti Wilderness for search and rescue operations and other wilderness management actions, and would have short- and long-term positive effects for wilderness management.

Additionally, the San Juan Basin Wilderness Protection Act addressed the acquisition of 11 Navajo allotments within and adjacent to the De-na-zin Wilderness through exchange. This would add 1,652 acres to the wilderness if all allottees concur. However, the sociological changes associated with relocation (i.e. distance from shrines, special natural material gathering areas, springs) may be too great to attract many exchanges. The acquisition of these allotments would help preserve wilderness characteristics once the allotments are rehabilitated. This action could provide positive benefits of land consolidation and increased manageability depending on the location of the acquired allotments.

There would be no change in the management of the Ah-shi-sle-pah WSA.

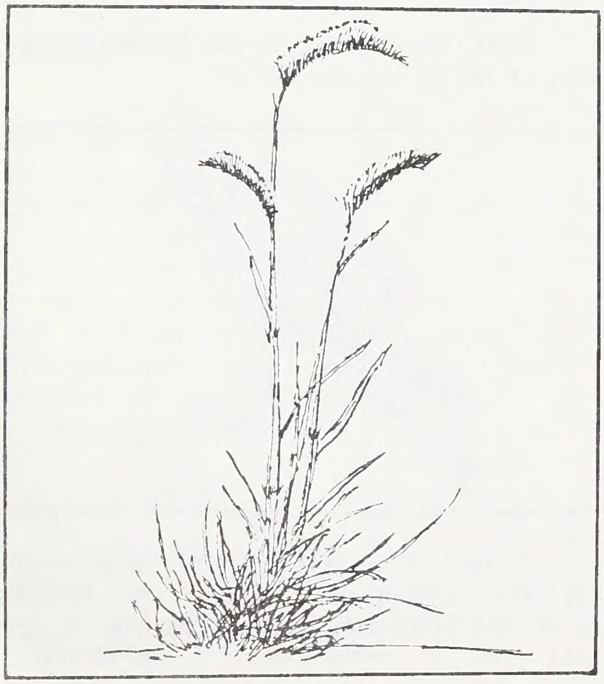


There is a competitive coal tract on the northwest boundary of Bisti, one between Bisti and De-na-zin, as well as one on the east side of Ah-shi-sle-pah. Additionally, the Bisti has two coal leases a short distance from its southern boundary. Should these tracts be mined, the impacts would be the same as those attributed to the Gateway Mine (noise, dust, visual impacts). Mines normally operate for more than 10 years so the effects would be both short and long term to the wilderness areas and the WSA. The negative impact could degrade wilderness characteristics. Wilderness Areas have also been withdrawn from mineral leasing. This would continue to have long-term benefits to wilderness.

Under current management, legislation prohibits mechanical/motorized vehicles in designated wilderness. As a result, the Bisti and De-na-zin have been "closed" to vehicle travel. The WSA has been designated as "limiting" vehicle travel to existing routes. These actions are designed to have a beneficial effect on wilderness resources.

SUMMARY

The current management situation of the SMAs results in positive, short- and long-term benefits to the Wilderness Areas. Adjacent leasing and development of surface coal is projected to have potential negative, short- and long-term impacts to wilderness characteristics.



CULTURAL RESOURCES

Development of the fuelwood and domestic coal licensing program allowing dead and down and greenwood cutting would result in moderate impacts from fuelwood gathering. Mitigation of impacts from domestic coal licensing would be treated on a case-by-case basis and would result in no adverse impacts to cultural resources.

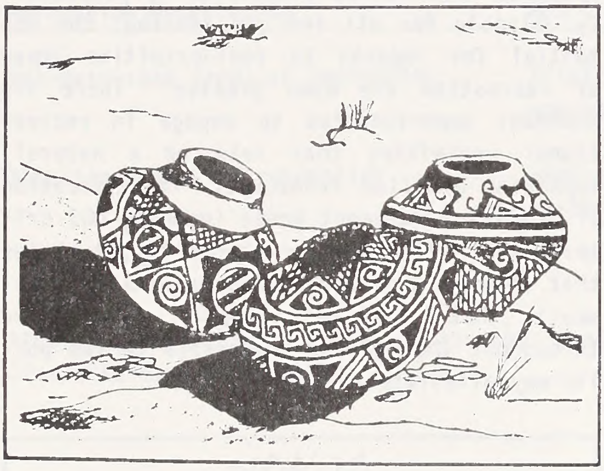
Resolution of the lands issue would have no adverse impacts on cultural resources since a Class III inventory and subsequent mitigation of National Register eligibility is required prior to exchange or sale to non-federal ownership. There would be no impacts to cultural resources on lands transferred to other federal agencies. An MOU with the state of New Mexico outlines mitigation procedures for exchange of BLM surface to state ownership.

Management of 8 Chaco Outliers and 3 identified Native American Traditional Use and Sacred Areas would continue.

Acquisition of lands which contain significant sites would have positive effects on cultural resources. In areas where the BLM acquires surface ownership over non-federal minerals, consultation procedures should be established to ensure that cultural resources sites on federal surface are not impacted by approval of proposed mineral actions by state or private entities.

Management of eight Chaco Outliers and three identified Native American Traditional Use and Sacred Areas would continue. As a result, there would be no impact to these 11 cultural areas. Not designating additional SMAs under this alternative could result in adverse impacts to cultural resources.

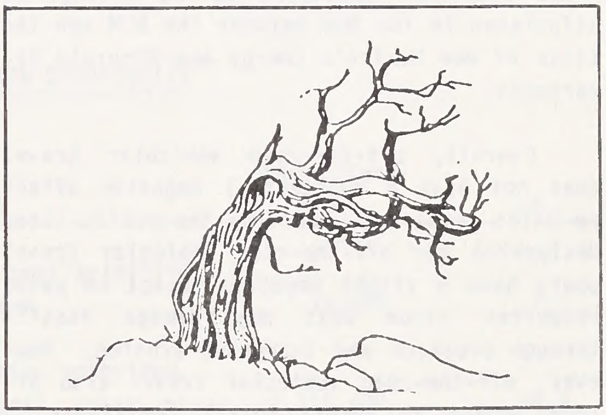
Impacts to cultural resources for competitive coal leases that are brought forward and mined would be low to moderate. This is because the application of the multiple use screens caused areas containing sites warranting in-place preservation and which were not amenable to data recovery to be dropped from consideration. Direct impacts would be mitigated by inventory, testing, and excavation and would result in a determination of no adverse effect for sites in the lease area. However, vandalism is expected to increase as a result of easier access and higher population densities in the vicinity of the mines. These impacts can be minimized through public education, signing, and monitoring programs as well as with law enforcement support. In addition, vibration from blasting, mine equipment, and vehicles could affect the stability of standing masonry walls. Standing walls could be affected if mining occurs in the Bisti #4, Nageezi, Kimbeto #1 and #2, Gallo Wash #1 and #2, Star Lake West and East, Chico Wash, Lee Ranch East, and Crownpoint East and Northeast tracts. These latter effects could range from moderate to severe on a site-specific basis. A monitoring plan will be implemented to track effects of vibration on standing walls.



Cultural resources in areas near population centers, such as the La Plata Valley and in The Meadows northwest of Farmington, have received some impacts from off-the-road vehicular travel. Direct impacts to exposed features and artifact scatters have resulted from vehicle (tire) damage. Other areas have suffered indirect impacts from unauthorized collection and vandalism due to cross-country vehicular travel into backcountry areas. This activity is known to occur but the number of sites impacted is not known at this time. The proposed FRA 10 percent cultural resources inventory should help identify specific areas impacted by ORV use. Mitigating measures to reduce these impacts include public education, resource monitoring, patrolling, and restricting off-the-road vehicular travel in affected and potentially affected areas.

SUMMARY

Under this alternative, impacts to cultural resources are mixed. Positive effects will result from Chacoan Outlier management. Cultural resources could also be positively affected by acquisition of significant sites on Middle Mesa. On the other hand, negative impacts are occurring as a result of unlimited and uncontrolled access associated with development and off-the-road vehicular travel.



PALEONTOLOGY

Continuation of current management practices is adequate to avoid significant impacts to the paleontological (paleo) resources. Impacts are mitigated on a case-by-case basis.

An inventory of the paleo resources would be required prior to mining.

The lands issue would have little impact on paleo resources. The acreage on Middle Mesa to be acquired would not have an effect and individual land exchange applications would probably be small and isolated enough to be of low or no impact.

Fuelwood collection would have no impact on paleo resources, however, domestic coal licenses might have both a negative impact (that of destroying fossils) and a positive effect of exposing new fossils to the surface. Overall the impacts would not be overwhelming because of the small size of the domestic coal license areas and because they are not in areas of known significant paleo resources.

Not designating additional SMAs could have an adverse affect on paleo resources.

There would be a positive short-term effect in allowing coal tracts to be leased and eventually mined. An inventory of paleo resources would be required prior to mining, as well as documentation or collection of vertebrate specimens uncovered during mining, as stipulated in the MOU between the BLM and the state of New Mexico's Energy and Minerals Department.

Overall, off-the-road vehicular travel does not have a substantial negative effect on paleo resources. Leaving the public lands designated for off-the-road vehicular travel could have a slight negative impact on paleo resources since ORVs may damage fossils through breakage and increased erosion. However, off-the-road vehicular travel also allows access to remote fossil localities, a positive consideration for researchers.

SUMMARY

Of the issues identified, SMAs which enhance paleontological research have the greatest positive impact on paleo resources.

OUTDOOR RECREATION

For the special management areas issue, there are adverse impacts to recreation opportunities that rely on a predominantly natural environment as described by the Recreation Opportunity Spectrum (ROS, see Appendix F). For the purpose of impact analysis, ROS classes are described by three types of recreation opportunity environments: predominantly natural, natural-appearing modified landscapes, and predominantly urban (see Table 3-3).

Abundant opportunities to engage in recreational activities exist in the FRA.

Only 1.7 percent of the public lands in the Resource Area contain outdoor recreation opportunities that rely on a predominantly natural environment, all of which are associated with wilderness resources. Due to the growing demand for these types of opportunities, the low supply and concentrated location of these opportunities and the premise that these opportunities are not easily created through manipulation of the environment, impacts are great and could be considered irretrievable and irreversible.

Considering that only 490 acres (less than 0.1 percent) of public surface in the Resource Area is not classified as potentially valuable for oil and gas leasing, the potential for impacts to semi-primitive types of recreation are even greater. There are abundant opportunities to engage in recreational activities that rely on a natural-appearing modified landscape. Identification of Special Management Areas (meeting ROS criteria for containing recreation opportunities that rely on a predominantly natural environment) that are more evenly distributed throughout the FRA and accessible to the public may alleviate adverse impacts.

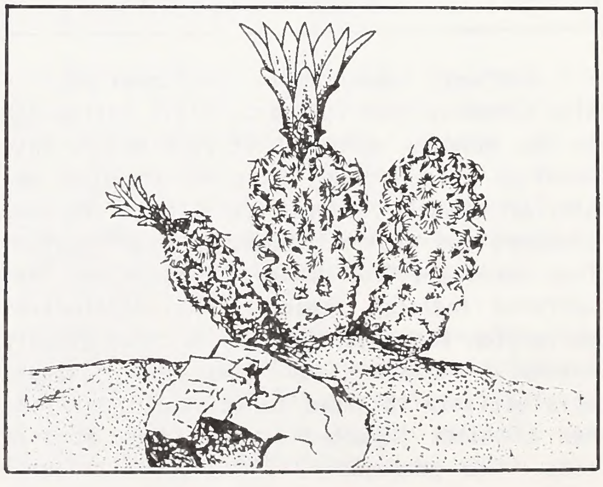


TABLE 3-3: RECREATION OPPORTUNITY ENVIRONMENT

Recreation Opportunity Environment	ROS Classes	Public Land Acreage	%
Predominantly natural	Primitive, semi-primitive nonmotorized	19,000	1.7
Naturally appearing modified landscape	Semi-primitive motorized, roaded natural	1,081,400	95.6
Predominantly urban	Rural, urban	30,000	2.7
	Total*	1,130,400	100

*ROS Study Area (San Juan County and that portion of Rio Arriba County west of the USFS Jicarilla Ranger District)

TABLE 3-4: RECREATION OPPORTUNITY

Recreation Opportunity	ROS Classes	Public Land Acres	%
Non-motorized types of recreation	Primitive, semi-primitive non-motorized	19,000	1.7
Motorized types of recreation	Semi-primitive motorized, roaded natural, urban, rural	1,111,400	98.3
	Total*	1,130,400	100

*ROS Study Area (San Juan County and that portion of Rio Arriba County west of the USFS Jicarilla Ranger District)

Of the 39 competitive coal leasing tracts, those which could be leased adjacent to the Bisti and De-na-zin Special Recreation Management Areas may adversly affect the low supply of semi-primitive non-motorized types of recreation opportunities.

The influence of the transportation issue regarding motorized vehicles is two-fold. ROS classes are divided into motorized and non-motorized types of recreation (see Table 3-4). Only 1.7 percent of public lands contain opportunities for non-motorized types of recreation, all of which are concentrated among wilderness resources. Motorized types of recreation opportunities are abundant throughout the FRA and are deemed a benefit for this type of recreation activity. Considering the low supply of non-motorized opportunities and their concentrated location, overall impacts to outdoor recreation resources are negative. Restricting motorized vehicle use on lands that meet the ROS criteria for non-motorized types of recreation opportunities may alleviate adverse impacts.

SUMMARY

Selection of Alternative A would have adverse impacts on outdoor recreation resources. Short- and long-term negative impacts are readily observable on non-motorized types of recreation and opportunities relying on a predominantly natural environment.

SOCIAL AND ECONOMIC CONDITIONS

Land ownership adjustments under this alternative consider the acquisition of 6,078 acres and the possible exchange or disposal of 73,223 acres. Using the 1985 mil levies and the average per acre in lieu of tax payments there could be a reduction to county revenues of approximately $42,000 annually. This is a 0.1 percent decrease from the 1985 real property tax revenue for the county and is two percent of the in lieu of tax payments.

Home use fuel sources under this alternative would not change and in the short term there would be no economic or social impact. However, fuelwood prices may increase in the long term as a result of increased demand if the area's population continues to grow. Rising prices would have only a slight economic effect on the urban fuelwood user who uses fuelwood as a luxury. The social and economic impact on local resident users in the rural areas would be greater. These rural users would find it increasingly more difficult and expensive to obtain their traditional heating and cooking fuel.

> ***Home use fuel sources under this alternative would not change.***

No new special management areas would be identified under this alternative. Consequently, no short-term social or economic impacts would occur on those areas identified for special management in other alternatives. However, in the long term, scientific, educational, and historic resource conditions would probably decline if these social values were not protected.

Off-the-road vehicular travel was specified by livestock operators and at least one tribal official as being a problem in livestock harassment. This problem could increase over the long term if the population increases and more routes and trails are created.

Rights-of-way corridors and windows would not be designated under this alternative. In the long term incompatible development could occur in the critical transmission placement areas, which could eventually interfere with transmission line construction, increasing development costs. Future transmission lines could continue to be scattered throughout the area resulting in increased conflicts with owners of non-public lands.

SUMMARY

As a consequence of land ownership adjustments, short-term economic impacts will result from reduced tax revenues but not at significant levels. Other issues are not expected to have significant social or economic short-term or long-term impacts.

ALTERNATIVE B: RESOURCE CONSERVATION

MINERALS

This alternative proposes the exchange or sale of 98,945 acres of federal surface. The impacts to the minerals program are related to split surface mineral estate and include more complicated oil and gas, locatable, and saleable mineral exploration and development, lower bonus bids, and possible prevention of surface coal mining under the surface owner consent provisions of SMCRA, as well as de facto withdrawal of locatable minerals under FLPMA disposal. About 6.8 percent of the total surface acreage available for exploration and development could be affected.

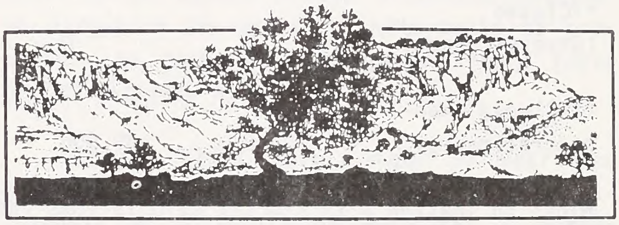
Twenty-eight resource conservation-oriented Special Management Areas (SMAs) would be carried forward under this alternative. In addition to the Bisti Wilderness, De-na-zin Wilderness, Ah-shi-sle-pah WSA and the Fossil Forest RNA discussed under Alternative A, approximately 80 acres in the Tanner Lake Battlefield SMA would interfere with coal development for the short or long term. Oil and gas exploration could be hindered over much of the SMA acreage, but probably would not be entirely prevented. Saleable minerals would not be sold on most of the SMA acreage.

Tracts carried forward under this alternative must pass all coal screens.

Under this alternative, only 14 competitive coal leasing tracts comprising 57,778 acres and 429.8 million tons of federal coal as described in Appendix O would be brought forward for further consideration for leasing. Tracts carried forward under this alternative must pass all coal screens, including the discretionary multiple use screen.

Right-of-way windows (ROW) would be designated under this alternative in a way that would minimize resource conflicts. Only minor impacts to the mineral resources, such as relocation of proposed oil and gas well sites, would be expected to result from this action.

The effects of this alternative on the oil and gas resource are presented in Table 3-5. Approximately 82 percent of the acreage which potentially contains federal oil and gas would remain open for development. This is three percent less than the present situation. Three percent more acreage (a total of 15 percent) would be open to development with certain constraints (see Appendix P).



SUMMARY

Up to 98,945 acres of split estate land, which could hinder mineral development, would be created. A total of 14 coal tracts would be brought forward for further consideration for leasing. While there would be a three percent decrease in lands available for oil and gas development, the impacts are considered insignificant.

RANGELAND

Under this alternative, motorized vehicle use would be "closed" or "limited" on 315,303 public acres (21 percent of the public lands within the Resource Area). Most of these lands are not presently showing damage caused by off-the-road vehicular travel. In localized areas vegetative vigor, productivity, and overall ecological condition could improve slightly over the long term because of reduced vehicular impacts. Public lands "open" to off-the-road vehicular travel would total 1,193,147 acres. Impacts to range resources associated with unrestricted off-the-road ve-

TABLE 3-5: ACRES OF FEDERAL OIL & GAS IN MANAGEMENT CATEGORIES VS. RESOURCE POTENTIAL (Acres rounded to nearest thousand)

Management Categories	Low or No Potential	Moderate Potential	High Potential	Unknown Potential	Total
Open	0	310,000	1,271,000	0	1,581,000
*Open with constraints)					
NSO	2000	32,000	14,000	0	48,000
Seasonal	0	11,000	104,000	0	115,000
Special values	0	51,000	81,000		132,000
**Closed (Discretionary)	0	0	13,000	0	13,000
***Closed (Non-discretionary)	0	39,000	1,000	0	40,000

*Open to leasing with special stipulations (No Surface Occupancy, seasonal restrictions, or surface operation plan to protect special values i.e. recreation, cultural, T/E species habitat).

**Closed due to planning decisions i.e. ACEC designations with management prescriptions which require no mineral developement.

***Closed due to law, executive orders, or similar actions, e.g. wilderness, Continental Divide Trail.

hicular travel are expected to be minimal, primarily due to the large numbers of oil and gas roads available for use.

Typically grazing operators are not displaced as a result of land exchanges.

Under this alternative, 98,945 acres could be transferred out of BLM administration. Those allottees on the public lands identified for land ownership adjustments under this alternative could potentially lose their grazing privileges (following a two year notification or expiration of the term, permit, or lease, whichever is longer) if the adjustments were consummated. If lands are offered for exchange to other land management agencies, the impacts would be mitigated if these agencies continued to grant livestock grazing use to the allottees. Typically grazing operators are not displaced as a result of land exchanges.

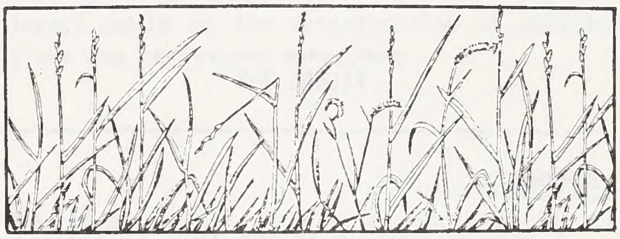
If lands are offered for competitive sale, affected allottees would have the option of purchasing public lands in their allotments.

In the long term, it would be anticipated that up to 16,491 AUMs of licensed use (17.7 percent of the total current preference in the Chaco Rangeland Management Area) would be transferred out of BLM administration as a result of land ownership adjustments. This is considered to be an irreversible impact.

The impact to range resources as a result of resolution of the competitive coal leasing issue would be the loss of forage and associated grazing. While the actual amounts would depend on which of the 14 competitive tracts carried forward under this alternative were actually mined, up to 11,891 public acres of forage (two percent of the total public acreage) and 1,982 federal AUMs (2.1 percent of the preference AUMs in the issue area) would be lost. A maximum of 10 allotments (9.6 percent of those in the issue area) and nine individuals (less than one percent) would lose part or all of their grazing privileges. These impacts would be long-term, lasting until the tracts are reclaimed and former grazing levels restored.

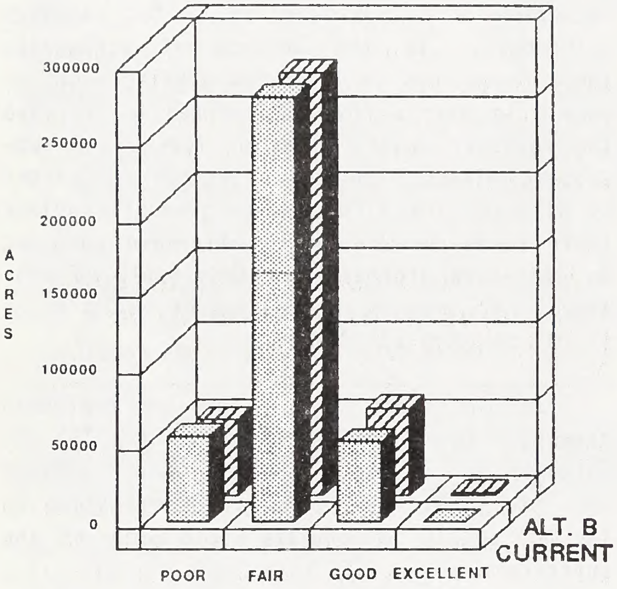
Based on current data it is estimated that a total reduction of 8,790 AUMs would be required for the five "I" category allotments. These proposed reductions would range from 15 to 58 percent of the current level of licensed livestock grazing use on the individual "I" allotments. Also proposed is a total reduction of 17,032 AUMs on 17 "C" category allotments. In the absence of agreements these reductions in livestock grazing would be phased in over a five-year period to decrease the adverse impacts (loss of forage and subsequent effects) on the livestock operations by allowing the allottees to gradually adjust their herds and/or locate alternate pasture. No long-term increases in AUMs would be proposed. No changes in management would occur on "M" category allotments.

In the short term, vigor of preferred livestock forage would improve on the "I" allotments as a result of decreased livestock use. No significant changes in vegetation on the "M" and "C" allotments would occur in the short term.



Increases in vegetative production on the "I" allotments would occur in the long term as a result of the livestock reductions, and changes in grazing management and installation of range improvements. However, these increases in vegetative production would not result in increased AUMs allocated to livestock grazing use but would result in improved watershed condition and enhanced wildlife habitat.

In the long term significant improvements in ecological condition would occur on the "I" allotments as a result of improvements in vegetative vigor and diversity and improved watershed conditions. No significant changes in ecological condition would be expected on "M" and "C" allotments. Figure 3-2 illustrates the expected long-term changes in ecological condition.



LONG-TERM CHANGES IN ECOLOGICAL CONDITION (ALTERNATIVE B)

FIGURE 3-2

SUMMARY

A reduction of 25,822 AUMs is estimated for the "I" and selected "C" category allotments. The increased vegetative production that would occur in the long term on the "I" category allotments would be reserved for improved watershed condition and enhancement of wildlife habitat (no increase in livestock grazing use would be considered until watershed and wildlife habitat needs were satisfied). Short-term improved vigor of preferred livestock forage and long-term improvement in ecological condition would be anticipated on the "I" category allotments.

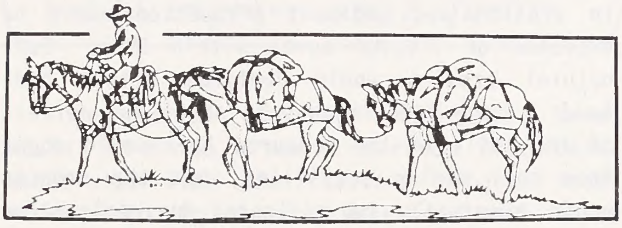
Long-term impacts would occur on a maximum of ten percent of the allotments and two percent of the federal lands in the issue area as a result of the resolution of the coal leasing suitability assessment issue, but they would be mitigated by reclamation after mining is completed. These impacts would affect less than one percent of the public lands in the issue area. The resolution of the transportation and land ownership adjustments issues could have minor long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue.

LANDS

Private and state lands totalling 43,653 acres in the Special Management Areas (SMAs) are identified for acquisition. Another 155,870 acres are targeted within the two acquisition zones designated by the outdoor recreation (54,500 acres) and wildlife/range/outdoor recreation (101,350 acres) programs. The impacts of exchange and acqusition are summarized in Table 3-2. In the long term, consolidation of the public lands would improve management efficiency and effectiveness within the retention and acquisition areas. This would have a significant positive impact on public resources. Under this alternative, 98,945 acres are identified for exchange or sale. The impacts of this action are positive because the BLM would be transferring parcels which are difficult or uneconomical for the Bureau to manage while acquiring parcels which have important values such as recreation and wildlife habitat. The problems of split mineral and surface estate in the exchange zone and in SMAs could create conflicts if mineral development occurs. While multiple use would continue in the retention and acquisition zones, uses within the SMAs would be limited by special management prescriptions (see Appendix B).

> ***Under this alternative, 98,945 acres are identified for exchange or sale.***

The five right-of-way (ROW) windows designated by this alternative are located in areas where conflicts with topography, land ownership restrictions, and strippable coal have been minimized. In general, the windows have been located in areas which do not have surface minable coal beneath them. Development that is incompatible with placement of transmission lines within these areas (i.e. school sites under the R&PP Act) would be restricted. In the long term, designation of ROW windows will improve ROW management and minimize environmental and social concerns, by concentrating ROWs in areas which do not have resource conflicts. Similarly, SMA prescriptions may be used to exclude ROWs from areas which could incur resource damage (i.e. cultural resource sites) if ROWs are constructed through them.



SUMMARY

Long-term positive impacts of the proposed acquisition, disposal, and rights-of-way designations would improve management efficiency and effectiveness. Long-term negative impacts would consist of increased conflicts resulting from the creation of additional split estate land.

FORESTRY

This alternative would limit fuelwood harvesting to collection of dead and down fuelwood. This would reduce the amount of green fuelwood available to the general public. By eliminating green fuelwood permits, silvicultural practices and the opportunity for woodland management would be reduced. The incidence of unauthorized fuelwood cutting may increase and become an even larger problem than it is at present. Demand would exceed supply and green pinyon and juniper would be harvested without authorization. Short-term impacts would be the reduction of available areas for fuelwood collection. The long-term impact would be a reduction of woodland sites as areas with intensive unauthorized cutting are depleted of trees and become shrub-grassland vegetation types.

The identification of SMAs containing woodland resources would provide for more intensive management attention in the form of patrol and surveillance, which would assist in the short- and long-term control of unauthorized fuelwood harvest on the woodlands in the SMAs.

ORV "limited" or "closed" designations may control the expansion of trails, however, each fuelwood permit already contains a stipulation which requires the holder to use only existing improved roads.

Each fuelwood permit already contains a stipulation to use only existing improved roads.

SUMMARY

Short-term impacts would be a reduction in the amount of fuelwood available to the public and a possible increase in unauthorized cutting of green trees. A potential long-term impact would be the deterioration of woodland sites due to reduced management.

SOILS

Under this alternative, 98,945 acres could be transferred out of BLM administration. This action would also result in long-term soil improvement and erosion control structures being transferred. Since lands will primarily be exchanged or sold, the Bureau will be compensated for their appraised value. If the structures are maintained by the party or agency acquiring the lands, no impact to the soils resource would occur. If the structures are not maintained, sediment and salt loads to lower basin users would increase.

Twenty-eight Special Management Areas (SMAs) would be identified under this alternative. Of these SMAs, approximately 315,303 public acres would contain prescriptive measures, such as closures to or limitations on ORV use, oil and gas stipulations, and closure to fuelwood gathering, that would result in protection for soil resources. In both the short- and the long-term soil resources would benefit. Reductions in erosion and sediment yield would be expected as lands are protected from surface-disturbing activities in the SMAs. Those SMAs whose value is based on erosional landforms (e.g. badlands) would continue to contribute sediment and salts offsite. Controlling soil losses adjacent to these SMAs may alter natural processes within their borders. Public lands impacted by these effects are located mainly within Kutz Canyon and the wilderness areas and wilderness study area. The acreage involved represents about two percent of the total federal surface acreage in the Resource Area.

Soils would be disturbed on up to 14 tracts as a result of coal mining and related activities, but enforcement of existing regulations would preclude significant adverse impacts pertaining to soil erosion and reduction in soil productivity on reclaimed areas (USDI, BLM 1984a). The 12,251 acres that could be affected represent less than one percent of the federal acreage in the Resource Area. Refer to Appendix O for a list of tracts being considered under Alternative B.

Emergency closures can be initiated where potential damage is shown to be significant.

Under this alternative 315,303 acres (approximately 21 percent of the public lands within the Resource Area) would be designated "closed" or "limited" to off-the-road vehicular travel, thereby providing protection for soil resources. The remainder of the public lands (1,193,147 acres) would be designated "open". For lands "closed" or "limited," erosion and sediment production would not increase as a result of off-the-road vehicular impacts. For lands designated "open," damage to soils could occur; however, emergency closures can be initiated where potential damage is shown to be significant. Gullying and wind erosion would increase where vegetative cover is reduced. Where loss of soil occurs, the damages are considered irretrievable and irreversible.

With the reductions in authorized use on "I" category grazing allotments, the expected 11 percent decrease in acres in poor ecological condition should improve vegetative cover and reduce soil erosion in the long term.

SUMMARY

Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Reductions in erosion and sediment production would be expected on 315,303 acres within SMAs. Some natural erosion would continue within badlands. Long-term impacts to about two percent of the soils in the Resource Area would occur from coal mining activities, but the impacts would eventually be mitigated by reclamation efforts. Approximately 21 percent of the public lands could receive protection from ORV impacts. Improvements in vegetative conditions should also improve soil conditions.

HYDROLOGY

The Resource Conservation Alternative would emphasize reducing authorized use on "I" category grazing allotments. In the long-term there would be an increase of 4,887 acres in good ecological condition (9 percent), and subsequently an improvement in vegetative ground cover. Overland flow velocities and storm runoff volumes during peak discharge would be reduced an average of 35 percent on key range sites (approximately 35,502 acres). This reduction in runoff would mean more onsite utilization of water and lower amounts of suspended sediments and dissolved salts transported by runoff water. Authorized use would be reduced 45 percent over current levels in the long-term, which would serve to maintain the improved vegetative cover and resulting benefits to water resources. The 49,998 acres that would remain in poor ecological condition class (12 percent) without improvement would have similar impacts as those described in Alternative A, namely high runoff rates and long-term increases in sediment and salt yields.

Acquisition of non-federal lands, particularly along river tracts identified by the wildlife program, and implementation of Habitat Management Plans (HMPs) would benefit water resources. Riparian improvements would improve water quality, help to dissipate stream energies associated with high flows, and enhance water storage which would prolong base flows.

Riparian improvements would improve water quality.

Designated fuelwood collection areas would serve to minimize surface disturbance associated with the fuelwood program Area-wide. Limiting the area where fuelwood can be collected would also limit the area where associated disturbance would occur. Long-term impacts to water resources would be mitigated by application of appropriate stipulations.

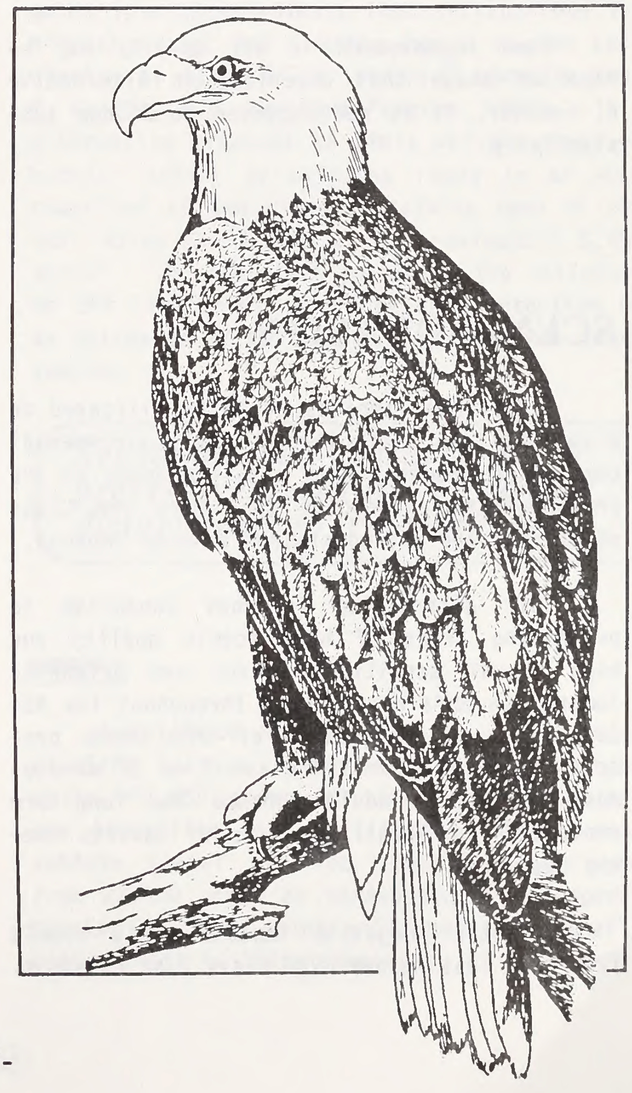
Under this alternative, 21 percent of the FRA would be designated "limited" or "closed" to off-the-road vehicular travel. The remainder of the Resource Area (79 percent) would be designated "open" to off-the-road vehicular travel. Impacts of this designation are the same as described in Alternative A and would include possible increases in runoff rates and sediment and salt discharges in localized areas.

Other areas of importance to water resources include the following SMAs: La Plata Valley, Canada Larga, Jones and Negro Canyons, Chacra Mesa, Carracas Mesa, the Upper Rio Puerco Watershed, and Farmington Lake Watershed. Limiting surface-disturbing activities would result in slightly increased water quality (reduced sediment and salt yields) and reduced runoff rates within local drainages in the long-term.

Detailed impacts to water resources were reported in the San Juan River Regional Coal EIS (USDI, BLM 1984a). Generally, effects are dependent upon the total acreage mined. For this alternative the maximum federal acreage would be 12,251 acres. This is less than one percent of the total federal surface in the Resource Area. The EIS reported that potential impacts to surface water resources would not be as important as impacts to ground water resources.

SUMMARY

Improvements in vegetative conditions would result in improvements to water resources. Implementation of habitat management plans on acquired riparian tracts would benefit water resources. Impacts of fuelwood collection would be minimized by designating fuelwood collection areas. ORV "closed" and "limited" designations for approximately 21 percent of the Resource Area may result in slightly decreased sediment and salt yields and runoff rates. Impacts of coal mining to water resources would depend upon the total acreage mined but would affect less than one percent of the federal surface.



AIR QUALITY

Impacts caused by resolution of issues under this alternative would not greatly differ from those described in Alternative A. The proposed actions of minimal coal leasing in the strippable coal belt and less oil and gas developed in certain SMAs would not measurably affect air quality. Current management guidance is to analyze the impacts of proposed actions which may affect air quality and mitigate those effects through the environmental compliance process.

Collection and monitoring of air quality related values in Class II, Prevention of Significant Deterioration areas (Bisti and De-na-zin Wilderness Areas) may be needed to mitigate effects of management actions related to air resources.

SUMMARY

Some improvement in air quality may be expected above that described in Alternative A, however, it is not expected to change substantially.

SCENIC QUALITY

Significant impacts would be mitigated on a case-by-case basis through the environmental compliance process. Any visual changes in the characteristic landscape that meet VRM Class objectives are not considered adverse impacts.

This alternative is most conducive to protecting areas of high scenic quality and high visual sensitivity which are primarily located in SMAs distributed throughout the Resource Area. Designation of SMAs whose prescriptions call for VRM Class I or II management objectives would enhance the long-term protection of localized areas of quality scenic resources.

Potential negative impacts could result from coal leasing near VRM Class I or II areas.

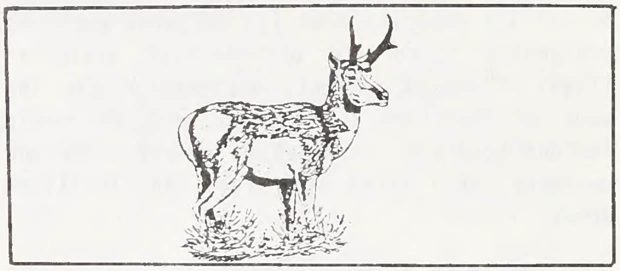
SUMMARY

Protection of SMAs and other areas that exhibit high scenic quality and high visual sensitivity would ensure a sample of quality visual resource opportunities in the Resource Area. This would produce positive benefits for scenic quality.

WILDLIFE

WILDLIFE HABITAT

Exchange or sale of public lands south of the resource conservation line (see Map 1-2) would result in the transfer of 98,945 acres out of BLM administration. Impacts of such a transfer cannot be predicted but in all likelihood are negligible when compared with present conditions. The public lands in the area scheduled for exchange support less than 20 pronghorn antelope and probably an equal number of mule deer. A variety of nongame species are found in the exchange area. Populations of and habitat for all wildlife species would likely remain the same unless the agency or individual acquiring lands conducted large scale habitat alterations. A positive impact of the resolution of this issue would be the designation for acquisition of 101,350 acres of high-priority wildlife habitat. Big game habitat in the Lindrith area would be retained, but the large amount of private land surrounding the isolated parcels of public land in that area would continue to make cost-effective management especially difficult.



Several proposed SMAs would benefit wildlife habitat. Jones Canyon, Negro Canyon, Rattlesnake Canyon, and Carracas Mesa all support wintering big game (deer and elk) populations. The River Tracts SMA would provide for the protection and management of riparian habitat on public lands (see River Tracts SMA description, Appendix B). This management would benefit both non-game and some game species.

As a result of livestock reductions, changes in grazing management and the installation of range improvements on "I" allotments, vegetative productivity is expected to increase over the long-term. These increases would not result in increased AUMs allocated to livestock grazing. Consequently, this increase in vegetative productivity could result in improved watershed condition and enhanced wildlife habitat.

The River Tracts SMA would provide for the protection and management of riparian habitat on public lands.

Under the transportation issue the designation of all SMAs as "limited" or "closed" could have a beneficial effect on wildlife and wildlife habitat. However, except for some river tracts, there is little evidence of off-the-road vehicular traffic in most of the SMAs designated for wildlife. As these areas are generally located far from towns, it is unlikely that ORV use in them will increase greatly over the next 20 years. Again, the majority of the conflicts with wildlife and vehicular use are not associated with ORVs, but are a result of human disturbance and poaching associated with the numerous oil and gas roads in the FRA.

THREATENED OR ENDANGERED SPECIES

Four SMAs are proposed to protect sensitive, threatened, or endangered species. The Reese Canyon SMA sets aside approximately 1,600 acres for special management of Los Pinos milk-vetch (Astragalus oocalyus) and other sensitive species; The Hogback SMA (7,520 acres) is established to protect several other rare plant species; the Bald Eagle Wintering Area SMA provides for special management of 11,970 acres of habitat for this species. The Aztec Gilia Habitat SMA provides for special management of a plant species which is both a federal candidate and a state listed endangered species.

This alternative proposes to limit off-the-road vehicular travel in the four special management areas created for threatened or endangered species. Off-the-road vehicular travel damage has been documented in The Hogback SMA (Knight 1981, Ecosphere Environmental Services 1985). As a result of this documentation an area of approximately 1,400 acres was closed to ORV travel in 1985. Based on new information obtained for additional sensitive plant species the area restricting vehicle travel to existing roads and trails has been expanded to include the entire SMA (7,520 acres). The Reese Canyon SMA presently shows no off-the-road vehicular damage. This ORV limitation is proposed to ensure that the BLM meets all legal obligations for the protection of endangered species. Seasonal road closures and ORV limitations in bald eagle wintering areas are a preventive measure to reduce disturbance to roosting birds. Three roads have been seasonally closed under present management. Another 10 would be closed to protect additional areas. Initial results of an on-going inventory indicate that off-the-road vehicular travel has a major impact on the population of Aztec Gilia (personal communication P. Knight, N.M. Heritage Program, 1986). This alternative proposes to limit off-the-road vehicular travel to existing roads in an ACEC comprised of two areas containing some of the best Aztec Gilia habitat (approximately 6,400 acres). The long-term result of the designated ORV limitations would be the protection of an estimated 27,490 acres of habitat for these species.

Seasonal road closures are a preventive measure to reduce disturbance to roosting birds.

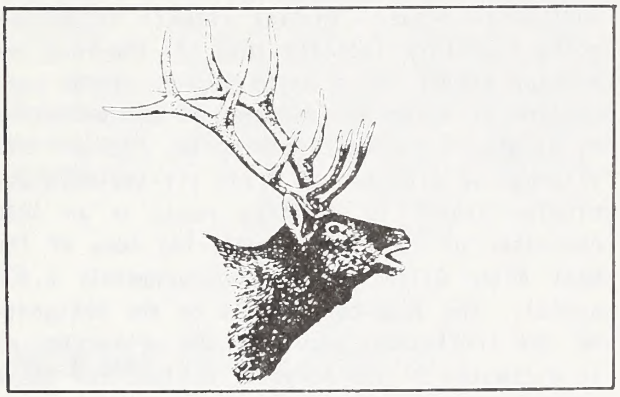
SUMMARY

A total of 98,948 acres of low-priority wildlife habitat would be sold or exchanged while 101,350 acres of high-priority habitat are identified for acquisition. Off-the-road vehicle travel will be limited or excluded from 27,490 acres of threatened or endangered species habitat, which will result in beneficial effects to these species.

WILDERNESS

The lands issue provides for continued BLM management of the Bisti and De-na-zin Wilderness Areas and the Ah-shi-sle-pah Wilderness Study Area. Additionally, this alternative proposes a land acquisition zone of 54,520 acres surrounding wilderness resources. Acquisition of these lands would provide for additional recreational opportunities on areas with characteristics similar to wilderness areas. The impact of acquiring land adjacent to the wilderness areas and WSA would be positive, and have both a short- and long-term effect.

The special management areas issue of continued management of Wilderness Areas and WSAs is identical to the lands issue discussed in the previous paragraph and would have the same effects.



There is a competitive coal tract on the northwest boundary of Bisti, one between Bisti and De-na-zin, as well as one on the east side of Ah-shi-sle-pah. Additionally, the Bisti has two coal leases a short distance from its southern boundary. Should these tracts be mined, the impacts would be the same as those attributed to the Gateway Mine (noise, dust, visual impacts). Mines normally operate for more than 10 years so the effects would be both short- and long-term to the Wilderness Areas and WSA. The negative impact could act to degrade the wilderness characteristics.

Legislation prohibits mechanical/motorized vehicles in designated wilderness. As a result, Bisti and De-na-zin have been "closed" to vehicle travel. The WSA has been designated as "limiting" vehicle travel to existing routes. These actions are designed to have a beneficial effect on wilderness resources.

SUMMARY

Resolution of the lands and SMA issues would result in positive, short- and long-term effects on wilderness resources. The coal issue may result in negative, short- and long-term effects if tracts are leased adjacent or close to wilderness lands.

CULTURAL RESOURCES

Continuation of the fuelwood program allowing dead and down and greenwood cutting would result in moderate impacts from fuelwood gathering. Since no new licenses would be issued, no impacts from domestic coal licensing would occur.

Resolution of the lands issue would have no adverse impacts on cultural resources if Class III inventory and mitigation of National Register eligible sites are conducted prior to sale or exchange of lands into non-federal ownership. An objective of the BLM cultural resource management program as stated in manual 8100.02A is to "protect and preserve representative samples of the full array of cultural resources". Although the BLM would no longer have management responsibility for sites in the exchange zone, samples of all site types would be protected in the retention zone. This is demonstrated in Table 2-3. For example, of the 250 BLM archaic sites and 1009 pueblo sites, approximately 80 percent and 60 percent of the sites are located in areas to be retained.

An MOU with the state of New Mexico outlines procedures for minimizing impacts to cultural resources in exchanges of BLM surface to state ownership. Class I inventories are completed to avoid transfer of public lands with cultural properties which are difficult to protect or which should be preserved in place. Proposed state land use is taken into consideration when the BLM and SHPO determine if additional inventory is needed to identify sites in the selected areas. In addition, the BLM and SHPO develop recommendations for National Register eligibility and outline requirements for mitigation of adverse effect. If the proposed use is incompatible with protection in place and costs of mitigation appear prohibitive, exchange parcels may be dropped. If the exchange or transfer is consummated, the agreement will contain binding requirements for cultural resource protection and preservation.

Acquisition of lands which contain important sites would have positive effects on cultural resources. In areas where the BLM acquires surface ownership over non-federal minerals, consultation procedures should be established to ensure that cultural resources sites on federal surface are not impacted by approval of proposed mineral actions by state or private entities.

Cultural resource sites and areas significant on a national level as well as to local Native American groups would be given special management attention to protect cultural values resulting in positive, long-term effects for this resource. Under this alternative, these properties include 25 Navajo Refugee sites, nine Chaco Outliers, five Native American Traditional Use Sacred Areas, the Chacra Mesa Complex, the East Side Rincon Site, and the expansive La Plata Valley and Canada Larga SMAs.

> ***Acquisition of lands which contain important sites would have positive effects on cultural resources.***

Impacts to cultural resources for competitive coal leases that are brought forward and mined would be low to moderate. This is because the application of the multiple use screens caused areas containing sites warranting in-place preservation and which were not amenable to data recovery to be dropped from consideration. Impacts would be mitigated by inventory, testing, and excavation and would result in a determination of no adverse effect for sites in the lease area. However, vandalism is expected to increase as a result of easier access and higher population densities in the vicinity of the mines. These impacts can be minimized through public education, signing, and monitoring programs as well as with law enforcement support. In addition, vibration from blasting, mine equipment, and vehicles could affect the stability of standing masonry walls. These standing masonry walls could be impacted if mining occurs on the Kimbeto #2, Gallo Wash #1, Lee Ranch East, Crownpoint East, Star Lake East and Chico Wash tracts. These latter effects could range from moderate to severe on a site-specific basis. A monitoring plan will be implemented to track effects of vibration on standing walls. Impacts to cultural resources resulting from competitive coal tract leasing are discussed in detail in the San Juan River Regional Coal EIS (USDI, BLM 1984a).

> ***Acquisition of permanent easements to SMAs would be given priority.***

"Closing" and/or "limiting" off-the-road vehicular travel in SMAs will help prevent damage to known important cultural resources and will result in beneficial effects to the resource. The proposed action of designating the majority of public lands "open" to off-the-road vehicular travel could potentially result in moderate to severe negative impacts to specific cultural sites where future off-road travel may occur. Unauthorized collection and vandalism are also major concerns. Mitigating measures to reduce these impacts include public education, monitoring, patrol, and restricting off-the-road vehicular travel in affected and potentially affected areas. The proposed FRA 10 percent cultural resource inventory should help identify areas impacted by ORV use.

Acquisition of permanent easements to SMAs would be given priority and would facilitate management of those areas, resulting in a long-term positive effect.

Designation of rights-of-way windows would have a positive, long-term effect on cultural resources by concentrating major rights-of-way in specific areas. Compliance with the National Historic Preservation Act for rights-of-way windows could be reached by inventory and mitigation on a case-by-case basis.

SUMMARY

This alternative would have a long-term, positive effect on cultural resources. Protection and management of significant cultural resource sites would be more balanced with a variety of prehistoric and historic occupations represented in the special management spectrum.

The designations to close or limit off-the-road vehicle use results in beneficial effects to specific areas with high cultural resource values. Potential adverse impacts could occur on a site-specific basis in "open" areas if off-the-road vehicular travel results in damage to sites.

PALEONTOLOGY

The designation of SMAs under this alternative would serve as a positive effect in protecting areas that have significant paleo resources.

There would be a short-term positive effect by allowing coal tracts to be leased and eventually mined. An inventory of paleo resources would be required prior to mining, as well as documentation or collection of vertebrate specimens uncovered during mining, as stipulated in the MOU between the BLM and the state of New Mexico's Energy and Minerals Department.

Overall, off-the-road vehicular travel does not have a significant negative effect on paleo resources. Designating public lands "open" to off-the-road vehicular travel could have a slight negative impact on paleo resources since ORVs may damage the fossils through breakage and increased erosion. However, there is very little evidence of off-the-road vehicular travel in the southern portion of the Resource Area on public lands. Off-the-road vehicle travel allows access to remote fossil localities, which has a negative effect when fossil theft results, but is a positive effect when it allows researchers better access to the fossils.

There is very little evidence of off-road vehicle travel in the southern portion of the FRA.

SUMMARY

Of the issues identified, SMAs which protect important paleontological type localities would result in the greatest positive impact on paleo resources. None of the other issues would have a significant effect.

OUTDOOR RECREATION

Proposed land ownership adjustments in the exchange zone (see Map 1-2) of the land ownership adjustment issue would not constitute an adverse impact because outdoor recreation opportunities in this zone are abundant elsewhere in the FRA. Except for SMAs in the exchange zone, which will be retained, there is little evidence of reported outdoor recreation use in the area. The outdoor recreation acquisition zone (see Map 1-2) could have long-term positive effects. Most of this zone exhibits overall similar attributes (i.e. natural environment, wildlife) found in federally protected areas inside and adjacent to the acquisition zone (i.e. Bisti and De-na-zin Wilderness Areas, Ah-shi-sle-pah Wilderness Study Area, Fossil Forest Research Natural Area, and Chaco Culture National Historical Park). Each area would benefit through similar management (e.g. compatible public access network, consolidated federal land, etc.).

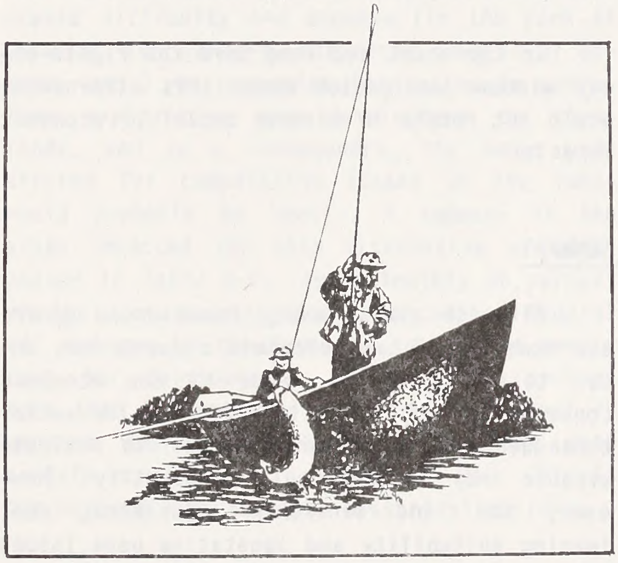
Acquisition of inholdings would ensure similar management of the outdoor recreation opportunities in the recreation acquisition zone. Outdoor recreation values available in the acquisition zone include environmental education associated with raptor nesting and feeding territories, paleontological materials, nationally known scenic attributes associated with badlands, historic and pre-historic cultural sites, and opportunities for outdoor types of recreation relying on a predominantly natural environment.

Resolution of the special management area issue includes the designation of additional SMAs that would enhance outdoor recreation opportunities. Predominantly natural types of outdoor recreation opportunities would be increased through the proposed designation of Jones Canyon, Carracas Mesa, and Negro Canyon SMAs. Management prescriptions would protect scarce opportunities that are poorly distributed in the FRA.

In the exchange zone, there is little evidence of reported outdoor recreaction use.

A description of the impacts of resolving the coal leasing suitability assessment issue is available in Appendices N and O.

Resolution of the transportation issue is two-fold as it pertains to motorized and non-motorized types of outdoor recreation opportunities. Adverse impacts have been mitigated through proposed restrictions to motorized vehicle use in all SMAs. Closing all or portions of the Crow Canyon, Carracas Mesa, Jones Canyon, Negro Canyon, and Rattlesnake Canyon SMAs to motorized vehicles would make public lands available that contain non-motorized types of recreation near population centers and highway arterials. Restrictions on additional public lands as described above would not constitute adverse impacts to motorized types of recreation since these types of opportunities are readily available throughout the FRA (see Table 3-4).



SUMMARY

Selection of Alternative B would result in overall positive effects on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Acquisition of the lands around the Wilderness Areas, the WSA and the Fossil Forest would improve overall recreation opportunities.

SOCIAL AND ECONOMIC CONDITIONS

Under this alternative the special management areas proposed would result in short-term, positive social impacts with no change in economic values. In the long term, impacts would be positive due to the preservation of social values and could be positive for economic values. For example, an area managed for recreation could have positive economic benefits resulting from increased tourism.

Land ownership adjustments for this alternative would result in a positive impact amounting to an increase in county revenue of approximately $41,000 annually. This is a 0.1 percent increase over the 1985 real property tax revenue and is not a significant change.

Home use fuel availability under this alternative could have negative impacts in the short term in that fuelwood may not be as readily available. In the long term fuel costs would probably increase as a result of increased demand. Rising prices would have only slight economic effect on the urban fuelwood consumer who uses fuelwood as a luxury. The social and economic impact on local resident users, particularly Native Americans who have traditionally used wood, would be greater. These rural users would find it increasingly more difficult and expensive to obtain traditional heating and cooking fuel. Some of the Native Americans have obtained domestic coal mining privileges for home use because of the shortage of wood and the availability of coal. Under this alternative no new home use mining would be permitted. This would have a long-term economic impact, however, the level of impact would probably not be significant.

300 jobs may result from surface mining one million tons of coal per year.

Coal leasing suitability assessment does not indicate intentions to mine specific volumes of coal and therefore does not provide for specific data for either social or economic analysis. An estimate of community impacts or opportunities foregone can be derived by looking at figures used in the San Juan River Regional Coal EIS (USDI, BLM 1984a). It was estimated for that EIS that as many as 300 jobs may result from surface mining one million tons of coal per year. If these jobs paid an average of $17,000 per year, the annual payroll would be over $5 million per year. On the other hand since many of the coal tracts involve Navajo use areas it is important to recognize the adverse social impacts that would result as mining disrupted some traditional uses of the land. The Navajo people have maintained a pastoral lifestyle and, through herding their sheep and goats, have been able to teach the young people many of their cultural values. The Navajo concerns were stated in a report titled "A Study of Navajo Perception of the Impact of Environmental Changes Relating to Energy Resource Development" (Schoepfle et al. 1978). In this study the people of Burnham classified the principal costs as loss of livestock and land, loss of emotional and economic support of the extended family, and the loss of security in life made possible by living in one place. Livestock and grazing permits were described as most important and the means of maintaining the other two.

The transportation issue deals primarily with ORV designations. No economic impacts should result that would be considered significant either in the short term or the long term unless critical watershed areas are misused and erosion destroys the watershed and contributes to the destruction of downstream water developments. Some social impacts will occur as ORV users adjust to some use restrictions and as livestock operators realize that off-the-road vehicular travel is a legitimate use of public lands.

Vegetative uses under this alternative would cause negative social and economic impacts for livestock operators. Most of the livestock operators in the issue area are Navajo and livestock provides supplemental income for an estimated 330 families. The magnitude of grazing reductions in terms of dollars is not expected to be significant on a regional or local basis. The economic impacts will be long term. The social impacts will be short term but may be rather severe. The BIA had a stock reduction program 50 years ago that caused considerable social and cultural problems. A number of Navajo people were no longer able to raise sheep and those who continued had their number of animals reduced. Because of the Navajo's strong feeling toward their lands and sheep raising, this stock reduction program's impacts have not been forgotten and talk about reducing the capacity of grazing allotments revives fears and concerns.

In the short and long term the rights-of-way windows designated under this alternative would not result in adverse social or economic impacts.

SUMMARY

Although almost every issue would generate some social and economic consequences under this alternative, none of the economic consequences would be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability and vegetative uses issues have the potential of arousing social concerns among the Navajo people.

The consequences of vegetative use adjustments could result in rather severe short-term social concerns that would become less severe with time but may last for years.

ALTERNATIVE C: RESOURCE PRODUCTION

MINERALS

This alternative proposes to exchange or sell 396,582 acres of surface under the land ownership adjustments (lands) issue. The impacts to the minerals program are related to split surface mineral estate and include more complicated, locatable, and saleable mineral exploration and development and possible prevention of surface coal mining under the surface owner consent provisions of SMCRA, as well as de facto withdrawal of locatable minerals under FLPMA disposal. A substantial amount (approximately 200,000 acres) of land known to be valuable for oil and gas (KGS areas) lies outside the retention zone (see Map 1-3). Disposal of this surface could increase difficulty and expense (in the form of payments for damages, easements, denial of access, etc.) to companies interested in petroleum exploration and development on these lands, and as a consequence, the bonus bids offered for competitive leases on the lands would probably be lower. A summary of the areas impacted for this alternative are presented in Table 3-6. Approximately 86 percent of the acreage potentially containing federal oil and gas in the Resource Area would remain open for development. This is one percent more than is presently open. An additional 10 percent would be open for development with certain constraints (see Appendix P). This is one percent less than the present situation.

Under this alternative, a coal special management area (SMA), comprised of 77,945 acres of federal surface, has been designated in the Fruitland coal belt. This SMA is designed to reduce conflicts while enhancing the potential to develop coal. Refer to Appendix B for a detailed explanation of this SMA.

Coal licenses under this alternative would present minimal impacts to the overall minerals program.

Under this alternative, coal tracts could be brought forward for further consideration for leasing if they pass the coal development, surface owner consultation, and unsuitability criteria screens. The discretionary multiple use screens would be applied except for No. 12. Other aspects of the coal program would remain as described under Alternative A. Refer to Appendix O for a list of the 17 coal tracts being carried forward under this alternative. These 17 tracts contain 876.6 million tons of coal (478.9 federal tons) on 60,698 acres.

SUMMARY

Up to 396,800 acres of split estate lands would be created. Seventeen coal tracts would be brought forward for leasing.

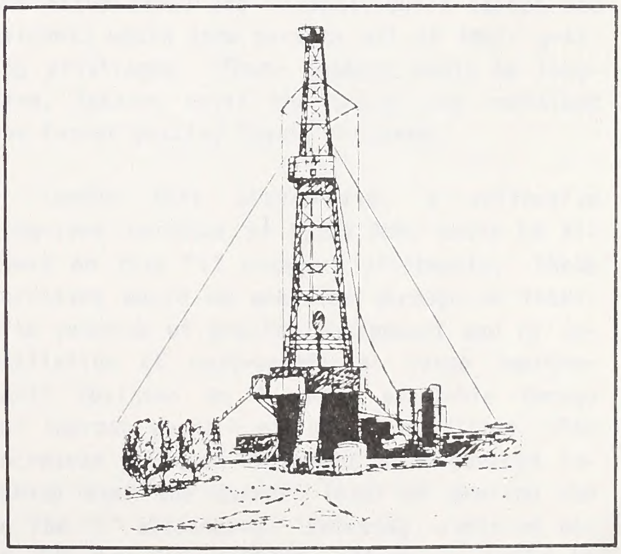


TABLE 3-6: ACRES OF FEDERAL OIL & GAS IN MANAGEMENT CATEGORIES
VS. RESOURCE POTENTIAL (Acres rounded to nearest thousand)

Management Categories	Low or No Potential	Moderate Potential	High Potential	Unknown Potential	Total
Open	0	314,000	1,354,000	0	1,668,000
*Open with constraints					
NSO	2,000	30,000	5,000	0	37,000
Seasonal	0	11,000	104,000	0	115,000
Special values	0	48,000	19,000	0	67,000
**Closed (Discretionary)	0	0	2,000	0	2,000
***Closed (Non-discretionary)	0	39,000	1,000	0	40,000

*Open to leasing with special stipulations (No Surface Occupancy, seasonal restrictions, or surface operation plan to protect special values i.e. recreation, cultural, T/E species habitat).

**Closed due to planning decisions such as ACEC designations with no management prescriptions which require mineral developement.

***Closed due to law, executive orders, or similar actions, e.g. wilderness and Continental Divide Trail.

RANGELAND

Under this alternative, 396,582 acres and 66,097 AUMs (71 percent of the total preference in the Chaco Rangeland Management Area) could be transferred out of BLM administration. This is considered to be an irreversible impact. Those allottees on public lands identified for land ownership adjustments could lose their grazing privileges (following a two year notification or expiration of the term, permit, or lease, whichever is longer) if the lands were exchanged or sold. If the lands are offered for exchange to other land management agencies, the impacts would be mitigated if these agencies continued to grant livestock grazing use to the allottees. If lands are offered for competitive sale, affected allottees would have the option to purchase the public lands in their allotments. Typically, grazing operators are not displaced as a result of land exchanges.

Additional domestic coal licenses could be issued.

The entire Resource Area would be available for collection of dead-and-down fuelwood and greenwood, within sustainable yield limits. This represents an increase in public acreage over that currently designated for fuelwood collection. Additional domestic coal licenses could be issued, but the number of these cannot be accurately predicted. While negative impacts to range resources from domestic coal mining would not be significant, the increased fuelwood gathering area (approximately 377,000 public acres) would proportionally increase the surface disturbances and declines in vegetative productivity and vigor associated with the current fuelwood program. Mitigative measures, in the form of stipulations on fuelwood permits, would continue to minimize the impacts of this activity.

In the short term, the addition of 25 percent more area for fuelwood collection could result in a subsequent increase in erosion and sediment production and a decline in vegetative vigor, productivity, and ecological condition. In the long term, proper silvicultural practices and fuelwood collection stipulations would reduce erosion and sediment production by improving the vigor of understory vegetation.

Under this alternative, off-the-road vehicular travel would be "closed" or "limited" on 42,599 public acres (three percent of the public lands within the Resource Area). Most of these lands are not presently showing damage caused by off-the-road vehicular travel. In localized areas vegetative vigor, productivity, and ecological condition could improve slightly over the long term because of reduced vehicular impacts. Public lands designated "open" to off-the-road vehicular travel would total 1,465,851 acres. Long-term impacts for these lands would be the same as those described under Alternative A and would include localized impacts on vegetative vigor, productivity, and ecological condition. In the short term, no major impacts to the range resource would be associated with off-the-road vehicular travel.

Impacts to vegetative resources from coal mining activities would be the loss of forage and associated grazing. While the actual amounts would depend on which of the 17 competitive tracts carried forward under this alternative were actually mined, up to 13,643 public acres of forage (2.3 percent of the federal acreage in the issue area) and 2,274 federal AUMs (2.4 percent of the preference AUMs in the issue area) would be lost. A maximum of 11 allotments (11 percent of those in the issue area) and 17 individuals (about one percent) would lose part or all of their grazing privileges. These impacts would be long-term, lasting until the tracts are reclaimed and former grazing levels restored.

Under this alternative, a collective long-term increase of 5,509 AUMs would be allowed on five "I" category allotments. These increases would be achieved through an intensive program of grazing management and by installation of cost-beneficial range improvements designed to increase available forage and improve overall ecological condition. The increases proposed represent a 25 percent increase over the current level of grazing use on the "I" allotments. Existing levels of use on "M" and "C" category allotments would be maintained, if substantiated by vegetative trend studies.

In the short term, vigor of preferred livestock forage would decline on the "I" allotments as a result of increased livestock use. No significant changes in vegetation on the "M" and "C" allotments would occur in the short or long term, because no changes in management would occur.

In the long term, improvements in ecological condition and vegetative production would occur on the "I" category allotments from improved grazing management and installation of range improvements. Figure 3-3 illustrates the expected long-term changes in ecological condition.

LONG-TERM CHANGES IN ECOLOGICAL CONDITION (ALTERNATIVE C)

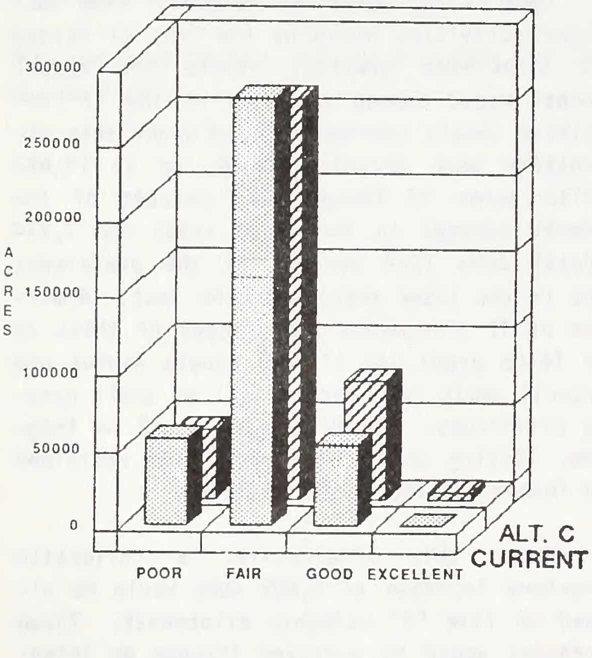


FIGURE 3-3

SUMMARY

An increase of 5,509 AUMs is estimated for the "I" category grazing allotments. Long-term improvement in ecological condition and increases in vegetative production would be expected on these allotments. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment (coal) issue on a maximum of 2.3 percent of the federal lands in the issue area, but they would be mitigated by reclamation after mining is completed. The resolution of the transportation and land ownership adjustments issues would have minor long-term negative effects, which can be mitigated in the case of the land ownership adjustments issue. Resolving the home use fuel sources issue would increase negative impacts.

LANDS

The principal goal of the lands program in Alternative C is to trade the public lands identified in the exchange zone for state and private lands in the retention area. No specific acquisition zones have been designated and only 5,527 acres of non-federal lands are identified for high-priority acquisition within SMAs. All other non-BLM lands in the retention zone would be considered for acquisition as a second priority.

A total of 396,582 acres of public land (620 square miles or 26 percent of the current public lands) are identified for exchange or sale in this alternative. While this alternative includes all of the tracts identified under Alternatives A and B, some of this acreage in the northern portion of the exchange zone is in larger parcels than the scattered and isolated tracts in McKinley County. The consolidated status of these lands could stimulate exchange proposals from the state of New Mexico, the Navajo and Jicarilla tribal governments, and the private sector. The general impacts of disposal and acquisition are summarized in Table 3-2. Federal regulations require all exchanges be in the public interest. Large scale or rapid exchange of public land in the exchange zone is not likely. These actions should be considered a long-term project lasting the entire life of this RMP.

An agreement that would improve land exchange procedures and lower costs was approved by the state of New Mexico and the BLM on Oct. 3, 1984. One of the main objectives of this Memorandum of Understanding (MOU) is to improve the land management potential of both state and federal lands. In the short term this MOU would mitigate the negative impacts associated with the high costs of processing exchange casework. In the long-term the opportunity exists to reduce management costs and increase resource values on both the state and BLM lands.

> *One of the main objectives is to improve the land management potential of both state and federal lands.*

The exchange of 620 square miles of federal surface for an equal dollar amount of non-federal surface could create split estate management problems. For example, one major impact to BLM management on acquired surface could be created by oil and gas development. This is because the BLM has only limited control of oil and gas development on acquired federal surface underlain with fee minerals. In an effort to ensure the orderly development of coal resources, which are primarily located in the exchange zone, the public surface within the Coal Belt SMA (122 square miles) would be retained and managed by the BLM.

No right-of-way corridors or windows are designated under this alternative. One adverse impact created would be the potential to impede development of public coal. For example, depending on the number of ROWs granted across a strippable coal tract, the cost to the coal lessee for relocating the ROW facilities could make it uneconomical to mine all or a portion of the tract. Other adverse environmental impacts could include the proliferation of ROW-related resource damage throughout the FRA. ROW management costs are also increased.

SUMMARY

A total of 396,582 acres of public lands are identified for exchange or sale. Only 5,527 acres of non-public lands are identified for high-priority acquisition. All other non-BLM lands in the retention zone would be considered for acquisition as a second priority. Long-term positive impacts of these actions would be improved management efficiency and effectiveness on consolidated lands. The long-term negative impact would be the potential increased conflicts caused by the creation of additional split estate lands.

FORESTRY

About 250 to 300 acres of fuelwood would be available for harvest each year on a sustained yield basis by providing silvicultural treatment for the woodlands and allowing both dead and down and greenwood cutting. This procedure may result in a decline in unauthorized fuelwood harvest as more wood would be available to help meet the increasing public demand. These are both short- and long-term positive impacts. The long-term impacts of providing silvicultural treatments (primarily controlled cutting and thinning of stands) to benefit the fuelwood supply would be a tendency to prevent uncontrolled harvest of woodlands. This management could reduce over-harvest in certain areas which can decrease woodland acreage and cause a shift to a shrub-grassland vegetative type after a few decades.

> *About 250 to 300 acres of fuelwood would be available for harvest each year.*

The establishment of any SMA containing woodland resources may result in short-term and long-term control of unauthorized fuelwood harvest since there could be increased patrols and surveillance in the SMAs. However, since SMA prescriptions tend to restrict fuelwood collection, the increase in the number of SMAs would also reduce the number of acres available for fuelwood harvest each year.

SUMMARY

About 250 to 300 acres of fuelwood would be available for harvest each year. Silvicultural treatments would be employed to maintain and enhance woodlands.

SOILS

Under this alternative, 396,582 acres could be transferred out of BLM administration. This action would also result in long-term investments in soil improvement and erosion control structures being transferred. Since lands will primarily be exchanged or sold, the Bureau will be compensated for their appraised value. If the structures are maintained by the party or agency acquiring the lands, no impact to the soils resource would occur. If the structures are not maintained, sediment and salt loads to lower basin users would increase.

Proper silvicultural practices and fuelwood collection stipulations could reduce erosion and sediment yield.

Most of the Resource Area would be available for collection of dead-and-down fuelwood and greenwood, within sustainable yield limits. This represents an increase in public acreage over that currently designated for fuelwood collection. Additional domestic coal licenses could be issued, but the number of these cannot be accurately predicted. While negative impacts to soil resources from domestic coal mining would not be significant, the increased fuelwood gathering area (approximately 377,000 public acres) could proportionately increase the surface disturbances associated with the current fuelwood program. In the short term, these additional surface disturbances could result in a subsequent increase in erosion and sediment production. In the long term, proper silvicultural practices and fuelwood collection stipulations could reduce erosion and sediment yield. Overall impacts to the soils resource from resolution of this issue would not be significant.

Of the total SMA acreage identified under this alternative, 42,599 public acres would contain prescriptive measures such as closures to or limitations on ORV use, oil and gas stipulations, and closure to fuelwood gathering resulting in protection for soil resources. Long- and short-term reductions in erosion and sediment yield would be expected as lands are protected from surface-disturbing activities in the SMAs. Those SMAs whose value is based on erosional landforms (e.g. badlands) would continue to contribute sediment and salts off-site. Controlling soil losses adjacent to these SMAs may alter natural processes within their borders. Public lands impacted by these effects would total 32,953 acres (2.2 percent of the total). Two SMAs designated primarily for ORV use would have accelerated rates of erosion and sediment yield. This would affect 1,150 public acres (less than 0.1 percent of the total). These impacts would be irretrievable and irreversible.

Soils would be disturbed on up to 17 tracts as a result of coal mining and related activities, but enforcement of existing regulations would preclude significant adverse impacts pertaining to soil erosion and reduction in soil productivity on reclaimed areas (USDI, BLM 1984a). The 14,003 acres that could be affected represent less than one percent of the federal acreage in the Resource Area. Refer to Appendix O for a summary of the tracts carried forward under Alternative C.

42,599 acres would be designated 'closed' or 'limited' to off-road vehicle travel.

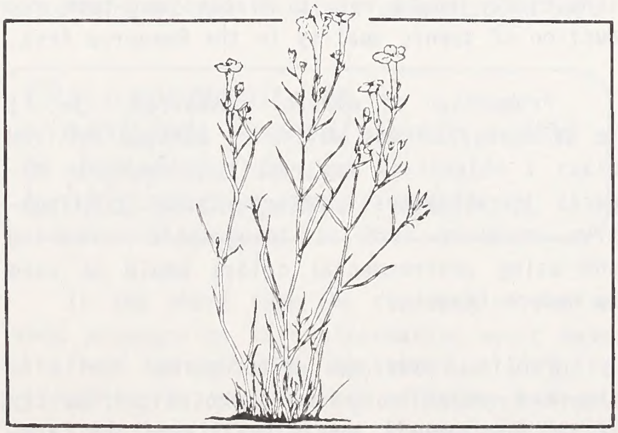
Under this alternative, 42,599 acres (approximately three percent of the public lands within the Resource Area) would be designated "closed" or "limited" to off-the-road vehicular travel, thereby providing positive effects to soil resources. The remainder of the public lands (1,465,851 acres) would be designated "open" to off-the-road vehicular travel. For lands "closed" or "limited", erosion and sediment production would not increase as a result of off-the-road vehicular impacts. For lands designated "open," damage to soils could occur; however, emergency closures can be initiated where potential damage is shown to be significant. Gullying and wind erosion would increase as vegetative cover is reduced. Where loss of soil occurs, the damages are considered irretrievable and irreversible.

In the short term, increased erosion and sediment production could occur on the "I" category grazing allotments (affecting 157,911 public acres) as a result of increased livestock use. However, as a result of vegetative treatments and improved grazing and watershed management practices, and subsequently an improvement in ground cover, there would be an increase in the number of acres in fair ecological condition, resulting in subsequent improvements to soils. No major changes in the soil resources would be expected on the "M" and "C" category allotments, because no major changes in grazing management would occur.

Under this alternative, no right-of-way corridors or windows would be designated. Rights-of-way placement would be considered Resource Area-wide except where conflicts with congressionally legislated decisions to exclude them or SMA conflicts occur. In the long term, mitigation and rehabilitation measures for disturbed areas would reduce erosion and sediment yield.

SUMMARY

Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Increases in acreage available for the collection of fuelwood may increase impacts to the soil resource. Long-term impacts to less than one percent of the soils would occur from coal mining activities. The impacts would be mitigated by reclamation efforts. Natural erosion would continue within badlands, and would be accelerated on two SMAs designated for ORV use. Soils would receive long-term positive benefits on "I" category grazing allotments.



HYDROLOGY

The resource production alternative (C) would emphasize exchange or disposal of all public lands (excluding SMAs) south of the resource production line (see Map 1-3) comprising 396,582 acres or 26 percent of the FRA. This would also result in the transfer of existing watershed improvement structures. Since lands will primarily be exchanged or sold, the Bureau will be compensated for their appraised value. Further, it is anticipated that most improvements identified for exchange would be maintained by the acquiring party. If improvements are not maintained, there would be a significant impact to the Rio Puerco drainage.

Additional trails associated with the fuelwood program could result in short-term increases in runoff rates and the amount of sediment transported off-site. The degree of this impact would depend on the actual extent the FRA is opened for fuelwood collection. In the long term, mitigation and rehabilitation measures for disturbed areas would reduce the severity of the impacts.

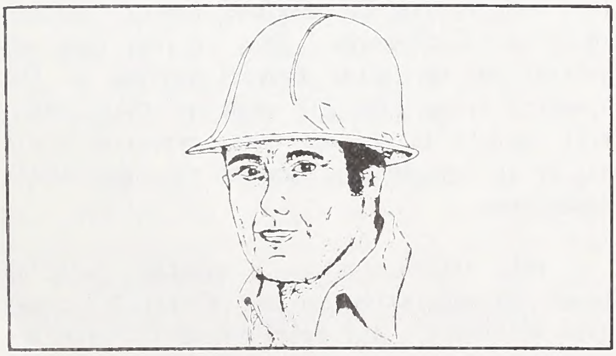
Under this alternative, 97 percent of the Resource Area would be designated "open" to off-the-road vehicular travel. With possible increases in surface disturbance and the creation of new trails, sediment and salt yields could increase in the long term in localized areas. Runoff velocities and volumes could also increase causing further instability in arroyo channels.

Detailed impacts to water resources were reported in the San Juan River Regional Coal EIS (USDI, BLM 1984a). Generally, effects are dependent upon the total acreage mined. For this alternative the maximum federal acreage would be 14,003 acres. This is less than one percent of the total federal surface in the Resource Area. The EIS reported that potential impacts to surface water resources would not be as important as impacts to ground water resources.

This alternative would maintain existing levels of vegetative use on "M" and "C" category allotments, and maintain or increase authorized use on "I" category allotments. There would be an increase of 45 percent over the current number of acres in good ecological condition as a result of vegetative treatments, and subsequently an improvement in ground cover. Storm runoff volumes and velocities during peak discharge would be reduced an average of 30 percent on key range sites (approximately 40,052 acres). This reduction in runoff would mean more on-site utilization of water, and lower amounts of suspended sediments and dissolved solids transported by runoff water. In the long term, authorized use would increase 14 percent, putting pressure on maintaining the improved vegetation and resulting benefits to water resources. The acreage in poor ecological condition (11 percent) would have the same impacts as described in Alternative A, namely high runoff rates and long-term increases in sediment and salt yields.

SUMMARY

Land ownership adjustments would not result in significant impacts to water resources. Short-term impacts would occur as a result of the fuelwood program. However, watershed improvement would occur in the long-term due to rehabilitative measures. Negative impacts from off-the-road vehicular travel on much of the Resource Area would result in long-term localized increases in sediment and salt yields as well as runoff velocities and volumes. Impacts of coal mining to water resources would depend upon the total acreage mined but would affect less than one percent of the federal surface. Runoff would decrease on grazing lands where ecological condition improves. Peak runoff rates would remain high and sediment and salt yields would increase on grazing lands in poor ecological condition.



AIR QUALITY

Impacts caused by resolution of issues under this alternative would not greatly differ from those described in either Alternative A or B. The increased availability of mineral resources that could be developed and processed would possibly result in a slight reduction in air quality, but not to a great extent. Compliance procedures will prevent significant impacts to air quality on a case-by-case basis.

Collection and monitoring of air quality related values in Class II, Prevention of Significant Deterioration areas (Bisti and De-na-zin Wilderness Areas) may be needed to mitigate effects of management actions related to air resources.

SUMMARY

A reduction in air quality may result due to proposed actions under this alternative. Impacts would be slightly greater than in Alternative A.

SCENIC QUALITY

Proposed resolution of the RMP issues would not result in adverse effects on scenic quality.

The lack of additional SMA designations that prescribe the protection of areas that exhibit high scenic quality and high visual sensitivity would result in the long-term reduction of scenic quality in the Resource Area.

Production of mineral resources adjacent to Wilderness Areas which are managed for VRM Class I objectives may result in negative impacts to wilderness characteristics. Mitigative measures such as topographic screening and using environmental colors would be used to reduce impacts.

Public lands now undesignated for off-the-road vehicular travel do not significantly effect the overall scenic quality of the Farmington Resource Area because of the lack of damage from this type of use.

SUMMARY

A trend of visual resource degradation commensurate with the level of natural resource development will likely occur with gradual deterioration of scenic quality on the majority of public lands due to visual contrasts in the characteristic landscape.

WILDLIFE

WILDLIFE HABITAT

Sale or exchange of public lands would mean that up to 396,582 acres of BLM-administered surface would no longer be under Bureau control. However, the opportunity to consolidate federal lands could be beneficial to the habitat management program if higher-quality wildlife habitat could be obtained. Except for the Lindrith area much of the public lands south of the resource production line is considered low-value game habitat. Existing inventory data are not sufficient to make a comparison of non-game habitat values in the exchange zone with those in the retention zone. Non-game management in this area has consisted solely of attempts to monitor and protect scattered nesting raptors. Portions of the public lands in the Lindrith area support both deer and elk. However, many public land tracts in this area are surrounded by private land and some have no public road access. Therefore public access and wildlife habitat management opportunities are severely limited.

> *The opportunity to consolidate federal lands could be beneficial to the habitat management program.*

In the short term the disposal of public lands proposed by this alternative would have no effect on wildlife habitat and wildlife populations in the Farmington Resource Area. The long-term effects are unpredictable as they depend upon the management practices of the agency or individual to whom the lands are transferred.

Area-wide fuelwood collection, particularly greenwood cutting, could have a detrimental impact on some wildlife species. Removal of large amounts of pinyon and juniper could reduce thermal, hiding, nesting, and roosting cover for a variety of game and non-game species. While the short-term effect would probably not be great, the long-term impact could be significant in localized areas as fuelwood resources near population centers are depleted.

The only special management area designated by this alternative which would have an impact on wildlife is the Laguna Seca Mesa SMA. This SMA would improve 3,840 acres of ponderosa pine stands. The management practices proposed would also serve as habitat improvement for elk, resulting in long-term benefits to the habitat and the species. The wildlife program would work closely with the forestry program during activity planning to ensure that wildlife concerns are fully incorporated into the management plan.

> *Most off-road vehicle travel is close to towns and cities and is not presently a problem in crucial wildlife habitat.*

Impacts of the coal issue on wildlife habitat would be the same as those summarized under Alternative A.

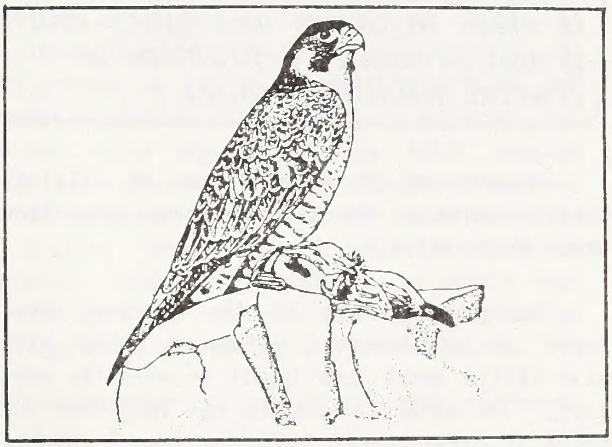
Designating most of the Resource Area "open" to off-the-road vehicular travel will have little short-term impact on wildlife habitat. The potential exists for long-term impacts if off-the-road vehicular travel results in damage to crucial wildlife habitat. However, most off-the-road vehicular travel is close to towns and cities and is not presently a problem in crucial wildlife habitat. The existing dense concentration of oil and gas field roads and heavy human disturbance of areas near population centers has already significantly reduced their value as wildlife habitat.

THREATENED OR ENDANGERED SPECIES

In the resolution of all issues under this alternative the BLM would continue to meet its legal obligation as described by policy and required by the Endangered Species Act. However, positive steps to improve and protect candidate species habitat would not be given priority. The long-term result of such an action would be the likely deterioration of Aztec gilia habitat which may result in the eventual listing of this species as threatened or endangered. There would also be an increased potential for disturbance of bald eagle roost sites.

SUMMARY

Up to 396,582 acres of wildlife habitat would be removed from federal ownership. Only 20,369 acres are considered moderate to high priority big game habitat. Habitat for sensitive plant species would not be managed other than by case-by-case consideration of potential disturbing activities. Overall impacts to the wildlife program would be slight, as existing policy and habitat management plans would remain in effect. A lack of positive management for rare plants could result in long-term negative impacts to these species.



WILDERNESS

The lands issue provides for continued management of the Bisti and De-na-zin Wilderness Areas and the Ah-shi-sle-pah Wilderness Study Area (WSA). While these areas would be retained, adjacent public lands are within the exchange zone. Disposal of these adjacent lands could result in potential adverse impacts to wilderness characteristics if they are developed. Planned or anticipated actions for parking areas, scenic overlooks, informational and educational displays, access areas for search and rescue, and wilderness rehabilitation projects would be negatively affected. Four miles of boundary lands around Bisti would be disposed of, 12 miles around De-na-zin, and 10 miles around Ah-shi-sle-pah. The effects of this alternative would be negative, both short- and long-term.

In the coal issue exists the possibility of leasing coal tracts that pass the screening criteria. Some of these tracts lie along the southern boundary of the De-na-zin and surround the Bisti and Ah-shi-sle-pah on all sides except the north. If tracts are leased adjacent to wilderness resources, or close to the WAs or WSA, the effects could act to degrade wilderness characteristics.

Under current management, legislation prohibits mechanical/motorized vehicles in designated wilderness. As a result, the Bisti and De-na-zin have been "closed" to vehicle travel. The WSA has been designated as "limiting" vehicle travel to existing routes. These actions are designed to have a beneficial effect on wilderness resources.

SUMMARY

The effects of the lands issue could be negative, short- and long-term. The coal issue could cause negative, short- and probably long-term impacts if leases are issued adjacent or close to wilderness resources.

CULTURAL RESOURCES

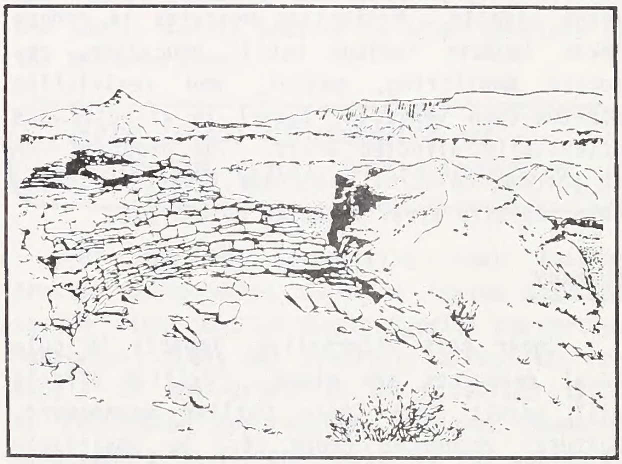
Resolution of the lands issue would have no adverse impacts on cultural resources if Class III inventory and mitigation of National Register eligible sites are conducted prior to sale or exchange of lands into non-federal ownership. An objective of the BLM cultural resource management program as stated in manual 8100.02A is to "protect and preserve representative samples of the full array of cultural resources". Although the BLM would no longer have management responsibility for sites in the exchange area, samples of all site types would be protected in the retention zone. This is demonstrated in Table 2-3. For example, of the 250 BLM archaic sites and 1009 pueblo sites, approximately 80 percent and 60 percent of the sites are located in areas to be retained. A known exception is the Canada Larga area which contains all of the Gallina phase occupation managed by the BLM. Although contradictory to BLM policy, retention is not necessarily warranted because Gallina sites are found under federal management elsewhere.

An MOU with the state of New Mexico outlines procedures for minimizing impacts to cultural resources in exchanges of BLM surface to state ownership. Class I inventories are completed to avoid transfer of public lands with cultural properties which are difficult to protect or which should be preserved in place. Proposed state land use is taken into consideration when the BLM and SHPO determine if additional inventory is needed to identify sites in the selected areas. In addition, the BLM and SHPO develop recommendations for National Register eligibility and outline requirements for mitigation of adverse effect. If the proposed use is incompatible with protection in place and costs of mitigation appear prohibitive, exchange parcels may be dropped. If the exchange or transfer is consummated, the agreement will contain binding requirements for cultural resource protection and preservation.

Acquisition of lands which contain significant sites would have positive effects on cultural resources. In areas where the BLM acquires surface ownership over non-federal minerals, consultation procedures should be established to ensure that cultural resources sites on federal surface are not impacted by approval of proposed mineral actions by state or private entities. Retention of the Chaco Outliers in the exchange zone would also have positive effects on cultural resources.

Development of the fuelwood and domestic coal licensing program allowing dead and down and greenwood cutting could result in moderate impacts from fuelwood gathering. Mitigation of impacts from domestic coal licensing would be treated on a case-by-case basis and would result in no adverse impacts on cultural resources.

Management of eight Chaco Outliers would continue with no impacts to these sites. If sites are present in the Dunes and Head Canyon ORV/OHV Special Management Areas, they will require mitigation through inventory and testing or excavation. This should result in no adverse impacts to sites in these ORV SMAs.



Impacts to cultural resources for competitive coal leases that are brought forward and mined would be low to moderate. This is because the application of the multiple use screens caused areas containing sites warranting in-place preservation and which were not amenable to data recovery to be dropped from consideration. Direct impacts would be mitigated by inventory, testing, and excavation and would result in a determination of no adverse effect for sites in the lease area. However, vandalism is expected to increase as a result of easier access and higher population densities in the vicinity of the mines. These impacts can be minimized through public education, signing, and monitoring programs as well as with law enforcement support. In addition, vibration from blasting, mine equipment, and vehicles could affect the stability of standing masonry walls. These walls could be impacted if mining occurs on the Crownpoint East, Gallo Wash #1, Lee Ranch East, Star Lake East, Chico Wash, Bisti 4, and Kimbeto 2 tracts. These latter effects could range from moderate to severe on a site-specific basis. A monitoring plan will be implemented to track effects of vibration on standing walls. Impacts to cultural resources resulting from competitive coal tract leasing are discussed in detail in the San Juan River Regional Coal EIS (USDI, BLM 1984a).

Impacts to cultural resources due to designating nearly 97 percent of public lands "open" to off-the-road vehicular travel are similar to those described in Alternative A. The lack of off-the-road vehicular restrictions in areas of known important cultural resource values could result in significant adverse effects. Mitigating measures to reduce these impacts include public education, resource monitoring, patrol, and restricting off-the-road vehicular travel in affected and potentially affected areas. The proposed FRA 10 percent cultural resources inventory should help identify areas impacted by ORV use.

SUMMARY

Under this alternative, impacts to cultural resources are mixed. Positive effects will result from Chaco Outlier management. Cultural resources could also be positively affected by acquisition of significant sites through land exchanges. Moderate to severe impacts to cultural resource sites could increase with development and ORV use.

PALEONTOLOGY

The sale or exchange of public lands in the exchange zone would result in the loss of BLM management of lands with known paleontological resources and lands that have potential for producing fossils. Important fossil-bearing formations exposed on the surface include Cretaceous and Tertiary. These formations contain fossils of mammals, lizards, crocodilians, turtles, dinosaurs, and fish. The retention of surface ownership in the coal belt SMA would allow for management and access by researchers on the 122 square miles of public land. This area would have the potential for producing important fossils prior to and during mining. If paleontological resources on exchanged lands are not available for scientific research, there would be negative impacts to paleo resources.

Important fossil-bearing formations exposed on the surface include Cretaceous and Tertiary.

An inventory of paleo resources would be required prior to mining, as stipulated in the Memorandum of Understanding.

Fuelwood collection would have no impact on paleo resources, however, domestic coal licenses might have both a negative impact (that of destroying fossils) and a positive effect of exposing new fossils to the surface. Overall the impacts would not be important because of the small size of the domestic coal license areas and because they are not in areas of known important paleo resources.

The Fossil Forest Research Natural Area and the Torrejon Fossil Fauna ACEC are the only paleo SMAs carried forward under this alternative. This serves as a positive effect in protecting areas that have significant paleo resources.

There would be a short-term positive effect by allowing coal tracts to be leased and eventually mined. An inventory of paleo resources would be required prior to mining, as well as documentation or collection of vertebrate specimens uncovered during mining, as stipulated in the MOU between the BLM and the state of New Mexico's Energy and Minerals Department.

Overall, off-the-road vehicular travel does not have an adverse effect on paleo resources. Designating the public lands "open" to off-the-road vehicular travel could have a slight negative impact on paleo resources since ORVs may damage the fossils through breakage and increased erosion. However, there is very little evidence of off-the-road vehicular travel in the southern portion of the Resource Area on public lands. Off-the-road vehicular travel allows access to remote fossil localities, which is a negative effect when fossil theft occurs, but is a positive effect when it allows researchers better access to the fossils.

SUMMARY

The lands issue has the potential for a negative impact to paleo resources. Of the other issues identified, the lack of SMAs which protect paleo values would be a negative impact.

OUTDOOR RECREATION

Resolution of the special management area issue and its effects on outdoor recreation resources by not identifying conservation-oriented SMAs would result in adverse impacts. Adverse impacts to recreation opportunities that rely on a predominantly natural environment as described by the Recreation Opportunity Spectrum (ROS, see Appendix F). For the purpose of impact analysis, ROS classes are described by three types of recreation opportunity environments: predominantly natural, natural-appearing modified landscapes, and predominantly urban (see Table 3-3).

Only 1.7 percent of the public lands in the Resource Area contain outdoor recreation opportunities that rely on a predominantly natural environment, all of which are associated with wilderness resources. Due to the growing demand for these types of opportunities, the low supply and concentrated location of these opportunities and the premise that these opportunities are not easily created through manipulation of the environment, impacts are great and could be considered to be irreversible and irretrievable.

Considering that only 490 acres (less than 0.1 percent) of public surface in the Resource Area is not underlain with leasable federal oil and gas, the potential for impacts to semi-primitive types of recreation are even greater. There are abundant opportunities to engage in recreational activities that rely on a natural-appearing modified landscape. Identification of Special Management Areas (meeting ROS criteria for containing recreation opportunities that rely on a predominantly natural environment) that are more evenly distributed throughout the FRA and accessible to the public may alleviate adverse impacts.

The identification of the Dunes ORV Play Area and Head Canyon ORV Competition Area SMAs and the Glade Run Trail System for primary use by off-highway vehicles is considered a short- and long-term positive effect. The public's knowledge and use of these areas and trails may reduce resource conflicts, user conflicts and public safety hazards in other portions of the Resource Area.

There is an abundance of motorized types of recreation.

Of the 39 competitive coal leasing tracts, those which could be leased adjacent to the Bisti and De-na-zin Special Recreation Management Areas may adversely affect the low supply of semi-primitive non-motorized types of recreation opportunity. Mineral resource development in the coal belt has the potential to negatively affect the only ROS semi-primitive non-motorized recreation opportunities in the FRA.

Resolution of the transportation issue regarding motorized vehicles would have overall adverse effects on outdoor recreation resources. There is an abundance of motorized types of recreation. Opportunities for non-motorized types of recreation are scarce. ROS classes are divided into motorized and non-motorized types of recreation (see Table 3-4). Only 1.7 percent of public lands contain opportunities for non-motorized types of recreation, all of which are concentrated among wilderness resources. Motorized types of recreation opportunities are abundant throughout the FRA and deemed a benefit for this type of recreation opportunity. Considering the low supply of non-motorized opportunities and their concentrated location, overall impacts to outdoor recreation resources are negative. Restricting motorized vehicle use on lands that meet the ROS criteria for non-motorized types of recreation opportunities may alleviate adverse impacts.

SUMMARY

Selection of Alternative C would carry forth overall adverse impacts on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Short- and long-term positive effects would result in the identification of two SMAs and a trail system managed for vehicular use.

SOCIAL AND ECONOMIC CONDITIONS

Land ownership adjustments for this alternative would result in changes in tax revenue and payments in lieu of taxes. The net result of these changes would create a negative county revenue adjustment estimated at $248,000. This is a 0.8 percent decrease in the 1985 real property tax revenue. This is not a significant change compared to the total county revenue.

Home use fuel availability under this alternative should have no significant social or economic impacts in the short term. In the long term, as local supplies are used up and distances to supplies are increased, costs of fuel will increase. This will have economic impacts on some users, but these impacts should not be significant. Some local rural users may find that coal becomes a less costly option.

Under this alternative the special management areas proposed would result in short-term, positive social impacts with no change in economic values for the non-Indian population. In the long term, impacts would be positive due to the preservation of social values and could be positive for economic values if tourism and recreational uses increase. For the Indian population short-term and long-term impacts may be negative if proposed uses destroy or conflict with Indian use of sacred, ceremonial, and burial sites or gathering areas.

Coal leasing suitability assessment does not indicate intentions to mine specific volumes of coal and therefore does not provide for specific data for either social or economic analysis (for more information see this issue under Alternative B).

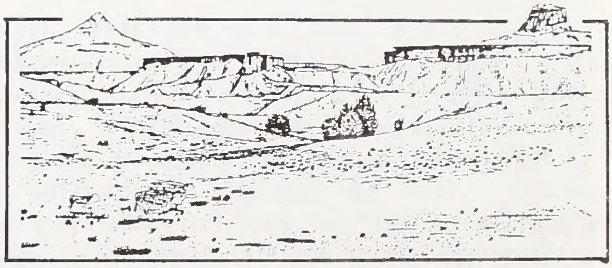
The transportation issue deals primarily with ORV use and designation (see this issue Alternative B for additional information).

Under this alternative, 25 percent more AUMs would be allowed (over current levels) on five "I" category grazing allotments. Economic impacts would be as much as $5,200 per year on one of three individual allotments and as little as $40 for community allotment permittees with a small number of livestock. Fewer than five percent of these permittees are expected to experience economic changes as a result of these increases. The economic impacts would be long term and the magnitude of them should not be great enough to result in significant regional impacts.

No right-of-way corridors or windows would be designated under this alternative. Short-term social and economic impacts are not expected. However long-term social impacts could result from resource use conflicts in some areas and economic impacts could result in rights-of-way acquisition or loss of resources resulting from rights-of-way placement. These long-term impacts are not likely to be significant.

SUMMARY

Although nearly every issue would have some social and economic consequences, none of the economic consequences would be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability and perhaps SMA issues have the potential of arousing social concerns among the Navajo people (see Alternative B for more detail).



ALTERNATIVE D

MINERALS

This alternative proposes to exchange or sell approximately 325,000 acres of surface under the land ownership adjustments (lands) issue. The impacts to the minerals program would be related to split surface mineral estate and include more complicated oil and gas, locatable, and salable mineral exploration and development, lower bonus bids, and possible prevention of surface coal mining under the surface owner consent provisions of SMCRA, as well as de facto withdrawal of locatable minerals under FLPMA disposal.

Thirty special management areas (SMAs) would be carried forward under this alternative. There are 32,953 acres of coal resources inside the wilderness areas, the wilderness study area and the Fossil Forest RNA. Of this total approximately 15,320 acres are considered to have moderate coal development potential, 7,680 acres are low potential, and 9,953 acres are high potential. Another 12,600 acres would be removed from coal development due to four right-of-way windows; however, coal development potential inside these windows is extremely low. Of the original 39 competitive tracts, only one was removed from further consideration because of conflicts with SMAs, and about 360 acres of the Bisti 4 tract was excluded pending study of the Fossil Forest Research Natural Area. A total of 77,945 acres of federal surface have been designated as the Coal Belt SMA in this alternative. This mineral-oriented SMA is designed to reduce resource conflicts while enhancing the potential to develop coal in the Fruitland formation. Refer to Appendix B for a detailed explanation of this SMA. Oil and gas exploration and development could be hindered on all of the SMAs but would probably not be entirely curtailed except on the wilderness areas and the Fossil Forest RNA after existing leases expire. A summary of the impacts for this alternative on the oil and gas program is presented in Table 3-7 and Figure 3-4. Approximately 13 percent of the acreage which potentially contains federal oil and gas would be open to development with special constraints or stipulations (see Appendix P). This is one percent more than the present situation. A total of 84 percent of the acreage would remain open without special constraints. This is one percent less than the present situation. Saleable minerals would probably not be sold on most of the SMAs. See the individual management prescriptions for each SMA under Appendix B. Impacts to the overall mineral program from these SMAs are not significant.

77,945 acres of federal surface have been designated as the Coal Belt SMA.

Under this alternative, 22 of the tracts, or portions thereof, have been dropped from further consideration for leasing because of a combination of data inadequacy, surface owner problems, a lack of coal development potential, and environmental conflicts. Refer to Appendix O for a list of the 17 tracts to be carried forward under this alternative. The 17 tracts contain 876.6 million tons of coal (478.9 million federal tons) on 60,698 acres.

Right-of-way windows (ROW) would be designated under this alternative in a way that

TABLE 3-7: ACRES OF FEDERAL OIL & GAS IN MANAGEMENT CATEGORIES VS. RESOURCE POTENTIAL (Acres rounded to nearest thousand)

Management Categories	Low or No Potential	Moderate Potential	High Potential	Unknown Potential	Total
Open	0	311,000	1,314,000	0	1,625,000
*Open with constraints)					
NSO	2,000	32,000	6,000	0	40,000
Seasonal	0	11,000	104,000	0	115,000
Special values	0	51,000	45,000	0	96,000
**Closed (Discretionary)	0	0	13,000	0	13,000
***Closed (Non-discretionary)	0	39,000	1,000	0	40,000

*Open to leasing with special stipulations (No Surface Occupancy, seasonal restrictions, or surface operation plan to protect special values i.e. recreation, cultural, T/E species habitat).

**Closed due to planning decisions such as ACEC designations with management prescriptions which require no mineral development.

***Closed due to law, executive orders, or similar actions, e.g. wilderness and Continental Divide Trail.

OIL & GAS MANAGEMENT CATEGORIES

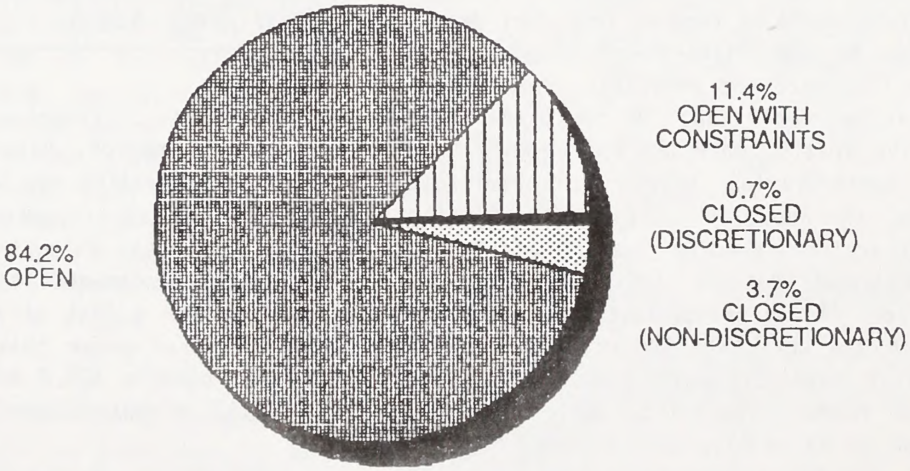


FIGURE 3-4

would minimize resource conflicts. Only minor impacts to the minerals resources would be expected to result from these actions.

17 coal tracts would be brought forward for leasing.

SUMMARY

Up to 325,000 acres of split estate lands would be created. A total of 17 coal tracts would be brought forward for leasing. Development of the Coal Belt SMA and the ROW windows would benefit the coal program.

RANGELAND

Under this alternative 324,942 acres (22 percent of the FRA's current public lands) could be transferred out of BLM administration. This represents 54,157 AUMs and 58 percent of the total current preference in the Chaco Rangeland Management Area. This is considered to be an irreversible impact. Allottees on public lands identified for land ownership adjustments could lose their grazing privileges (after a two-year notification or expiration of the term, permit, or lease, whichever is longer) if the lands are exchanged or sold. Due to private party agreements, this typically does not occur on land exchanges. If the lands are offered for exchange to other land management agencies, the impacts would be mitigated if these agencies continued to grant livestock grazing use to the allottees. If lands are offered for competitive sale, affected allottees would have the option of purchasing the public lands in their allotments.

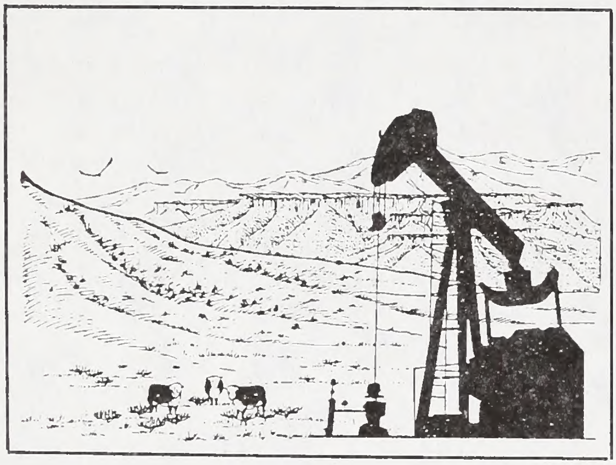
The entire Resource Area would be available for collection of dead-and-down fuelwood, within sustainable yield limits. This is an increase in public acreage over that currently designated for fuelwood collection. Greenwood cutting would be allowed only when this action would be consistent with planned range and wildlife improvement projects. Additional domestic coal licenses could be issued, but the number cannot be accurately predicted. Negative impacts to range resources from domestic coal mining and positive impacts from greenwood cutting would not be significant. The increased dead-and-down fuelwood gathering area (an additional 377,000 public acres) would proportionally increase the surface disturbances associated with the current fuelwood program. Mitigative measures, in the form of stipulations on fuelwood permits, would continue to minimize the impacts of this activity.

In the short term, the addition of 26 percent more area for collection of fuelwood could result in a subsequent increase in erosion and sediment production and a decline in vegetative vigor, productivity, and ecological condition. In the long term, proper silvicultural practices and fuelwood collection stipulations would reduce erosion and sediment production by improving the vigor of understory vegetation.

Under this alternative, off-the-road vehicle travel would be "closed" or "limited" on approximately 132,439 public acres (nine percent of the public lands within the Resource Area). In localized areas, vegetative vigor, productivity, and ecological condition could improve over the long term because of reduced vehicular impacts. Public lands designated "open" to off-the-road vehicular travel would total approximately 1,376,000 acres. In the short term, no major impacts to the range resources would be associated with "open" off-the-road vehicular travel. In the long term, however, increased off-the-road vehicular travel could have localized impacts on vegetative vigor, vegetative productivity, and ecological condition.

Impacts to rangeland resources from coal mining activities would be the loss of forage and associated grazing. While the actual amounts would depend on which of the 17 competitive tracts carried forward under this alternative were actually mined, up to 13,643 public acres of forage and 2,274 federal AUMs (2.4 percent of the preference AUMs in the issue area) would be lost. A maximum of 11 allotments (11 percent of those in the issue area) and 17 individuals (about one percent) would lose part or all of their grazing privileges. These impacts would be long-term, lasting until the tracts are reclaimed and former grazing levels restored.

A collective short-term decrease of 11,059 AUMs would be required for the five "I" category grazing allotments. Also, a total decrease of 8,511 AUMs would be required for 16 "C" allotments, to protect current resource values. These reductions in livestock grazing would be phased in over a five-year period to decrease the adverse impacts on livestock operations by allowing the allottees to gradually decrease herd size and/or locate alternate grazing. Existing levels of use on "M" and the remaining "C" allotments would be maintained, if verified by vegetative monitoring studies. Increases in vegetative production on the "I" and the affected "C" allotments would occur in the long term as a result of the livestock reductions, and changes in grazing management and installation of range improvements on "I" allotments.



In the short term, vigor of preferred livestock forage would improve on the "I" and the affected "C" allotments as a result of decreased livestock use. No major changes in vegetation on the "M" and remaining "C" allotments would occur in the short or long term. In the long term significant improvements in ecological condition would occur on the "I" allotments, resulting in an overall beneficial impact to range resources. Figure 3-5 illustrates the expected long-term changes in ecological condition. The reduced AUMs would be partially restored on the "I" allotments, resulting in a collective decrease of 6,663 AUMs over current levels.

LONG-TERM CHANGES IN ECOLOGICAL CONDITION (ALTERNATIVE D)

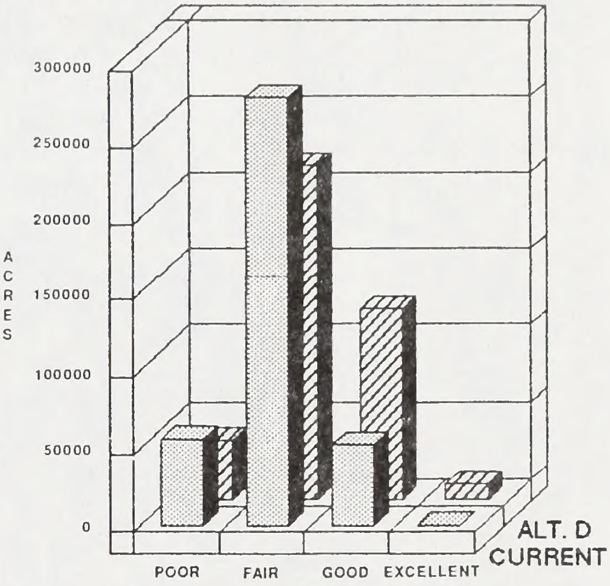


FIGURE 3-5

SUMMARY

A long-term reduction of 15,174 AUMs is estimated for the "I" and selected "C" category grazing allotments. In the long term the reduced AUMs would be partially restored on "I" allotments. In the short term, vigor of preferred livestock forage and ecological condition would improve on the "I" allotments. In the long term, resolution of resource conflicts would be expected on the "I" allotments. Long-term impacts would occur as a result of the resolution of the coal leasing suitability assessment (coal) issue on a maximum of 2.3 percent of the federal lands in the issue area, but they would be mitigated by reclamation after mining is completed. The resolution of the fuel sources and land ownership adjustments issues would have minor long-term negative effects, which would be mitigated by proper silvicultural practices and stipulations and possible exchange agreements, respectively. Negative impacts associated with ORV designations are not considered significant overall, but could impact localized areas.

LANDS

As in both Alternatives B and C, retention and blocking of public lands in the retention zone (see Map 1-4) are given high priority. In the long term consolidation of the public lands would significantly improve management efficiency, effectiveness and costs while improving the Bureau's ability to manage wildlife habitat, recreation, cultural resources and other programs. Split estate resource management would continue to be a negative impact.

Lands identified for high priority acquisition total 119,313 acres. While this is an 18-fold increase from the lands identified in the Current Management Alternative (A), it is a 53 percent decrease from lands identified in the Resource Conservation Alternative. Similarly, acreage available for exchange, sale, or transfer (324,942 acres) is a 7.5 fold increase over lands identified in the Current Management Alternative.

Section 3 grazing allotments are within the retention area under this alternative.

The increase in the acquisition and exchange acreage figures from those identified in Alternative A could increase the resource management problems created by split mineral/surface estate. However, these actions would significantly improve the Bureau's ability to effectively manage the public lands by exchanging isolated or difficult to manage tracts in the southern portion of the Resource Area for non-public lands in the wildlife/range/recreation acquisition zone.

Blocked public lands within three Section 3 grazing allotments are within the retention area under this alternative. This would be a positive impact for allottees operating on these permits. With the exception of some SMAs associated with paleontological resources, all other SMAs would be retained and managed by the BLM.

The four right-of-way (ROW) windows designated by this alternative are located in areas where conflicts with topography, land ownership restrictions, and strippable coal have been minimized. Development that is incompatible with placement of transmission lines within these areas would be significantly restricted. (See Appendices B and C). Major de facto ROW corridors would continue to be utilized where possible. Management prescriptions would also be used in SMAs to prevent ROW damage to resources needing protection.

SUMMARY

A total of 119,313 acres are identified for acquisition while 324,942 acres are identified for disposal. Four right-of-way windows are identified. These actions will have positive effects.

FORESTRY

Disposal of the lands in the Lindrith area will reduce the woodland and productive forest acreage in the Resource Area by less than 20,000 acres. Productive sites are located in this zone and support outstanding woodlands and forests. However, utilization of this resource is difficult due to the scattered and isolated nature of much of the public land in this area.

By providing silvicultural treatments in the woodlands to benefit range, forestry, or wildlife habitat, the supply of authorized fuelwood would increase and result in an expected decline in unauthorized fuelwood cutting.

The establishment of the Laguna Seca Mesa SMA would result in both short- and long-term benefits. Short-term impacts would be the reduction in fuelwood cutting trespass, increased opportunities for the public to obtain fuelwood and initiation of a silvicultural treatment of the forest and woodlands within this SMA. As a result the treated acres would be expected to contain healthier stands of pinyon-juniper and ponderosa pine. Production at the end of the first rotation age would be increased over 80 percent from the wood products that are available at the present time. The woodlands products would be rejuvenated if the proper treatments were applied and more wood products would be available to meet the future demand.

Woodlands products would be rejuvenated if the proper treatments were applied.

SUMMARY

Less than 20,000 acres of productive woodland and forest would leave federal ownership. Both forest and woodland management would be improved by the initiation of silvicultural treatments.

SOILS

Under this alternative, 324,942 acres could be transferred out of BLM administration. This action would also result in long-term investments in soil improvement and erosion control structures being transferred. Since lands will primarily be exchanged or sold, the Bureau will be compensated for their appraised value. If the structures are maintained by the party or agency acquiring the lands, no impact to the soils resource would occur. If the structures are not maintained, sediment and salt loads to lower basin users would increase.

Under this alternative, 324,942 acres could be transferred out of BLM administration.

While negative impacts to soil resources from domestic coal mining would not be significant, the increased dead-and-down fuelwood gathering area (approximately 377,000 public acres) could proportionately increase the surface disturbances associated with the fuelwood program. In the short term, these additional surface disturbances could result in a subsequent increase in erosion and sediment production. In the long term, proper silvicultural practices and fuelwood collection stipulations could reduce erosion and sediment yield.

Of the total SMA acreage identified under this alternative, 132,439 public acres would contain prescriptive measures, such as closures to or limitations on ORV use, oil and gas stipulations, and closure to fuelwood gathering, that would result in protection for soil resources. In the long term, soil resources would benefit. Reductions in erosion and sediment production would be expected as lands are protected from surface-disturbing activities in the SMAs. Those SMAs whose value is based on erosional landforms (e.g. badlands) would continue to contribute sediment and salts off-site. Controlling soil losses adjacent to these SMAs may alter natural processes within their borders. Public lands impacted by these effects are located mainly in Kutz Canyon and the Wilderness Areas and Wilderness Study Area. Where this occurs, the impacts are considered to be irretrievable and irreversible. The acreage involved represents about two percent of the total federal surface acreage in the Resource Area.

Soils would be disturbed on up to 17 tracts as a result of coal mining and related activities, but enforcement of existing regulations would preclude significant adverse impacts pertaining to soil erosion and reduction in soil productivity on reclaimed areas (USDI, BLM 1984a). The 14,003 acres that could be affected represent less than one percent of the federal acreage in the Resource Area.

Under this alternative, 132,439 acres (nine percent of the public lands within the Resource Area) would be designated "closed" or "limited" to off-the-road vehicular travel, thereby providing positive effects to soil resources. The remainder of the public lands (1,376,011 acres) would be designated "open" to off-the-road vehicular travel. For lands "closed" or "limited", erosion and sediment production would not increase as a result of off-the-road vehicular impacts. For lands designated "open," damage to soils could occur; however, emergency closures can be initiated where potential damage is shown to be significant. Gullying and wind erosion would increase as vegetative cover is reduced. Where loss of soil occurs, the damages are considered irretrievable and irreversible.

In the long term, decreases in erosion and sediment production would be expected on the "I" category grazing allotments as a result of improved ecological conditions. No major changes in soil resources would be expected on the "M" and "C" category allotments.

Some natural erosion would continue within badlands.

Soils within the Right-of-Way Windows SMA (12,600 public acres) would receive short-term impacts from surface disturbances due to increased right-of-way actions. There would be short-term increases in erosion and sediment yield. In the long term, these impacts would be mitigated by reclamation actions which would reduce erosion and sediment yield. Impacts to the soil resources would be insignificant.

SUMMARY

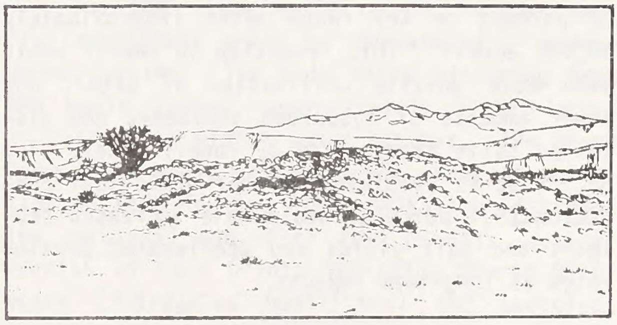
Land ownership adjustments would not impact soils if soil improvement and erosion control structures are maintained. Mining of coal tracts and off-the-road vehicular travel would not have long-term significant impacts. Increases in acreage available for the collection of fuelwood may increase impacts to the soil resource. Long-term impacts to less than one percent of the soils would occur from coal mining activities. The impacts would be mitigated by reclamation efforts. Reductions in erosion and sediment production would be expected on 132,439 acres within SMAs. Some natural erosion would continue within badlands. Long-term decreases in erosion and sediment production would be expected on the "I" category grazing allotments. Short-term increases in erosion and sediment production would occur on soils within the Rights-of-Way Windows SMA.

HYDROLOGY

The Preferred Alternative (D) would emphasize exchange or sale of public lands in the exchange zone (see Map 1-4) comprising 324,942 acres. This would also result in the transfer of existing watershed improvement structures. Since lands will primarily be exchanged or sold, the Bureau will be compensated for the appraised value of improvements. Further, it is anticipated that most improvements identified for exchange would be maintained by the acquiring party.

Under this alternative, there would be acquisition of non-federal lands in selected areas. Acquired tracts along the San Juan River and its tributaries and implementation of Habitat Management Plans would benefit water resources. Riparian improvements would improve water quality, help to dissipate stream energies associated with high flows, and enhance water storage which would prolong base flows.

Additional trails associated with the fuelwood program could result in short-term increases in runoff rates and the amount of sediment transport off-site. The degree of this impact would depend on the actual extent the FRA is opened for fuelwood collection. In the long term, mitigation and rehabilitation measures for disturbed areas would reduce the severity of the impacts.



Designation of certain SMAs under this alternative would be beneficial to water resources within selected areas, because they would be designated as "limited" or "closed" to off-the-road vehicle travel. However, 91 percent of the FRA would be designated "open" for off-the-road vehicular travel. Subsequently, peak runoff rates on localized areas could increase, and stream channel stability would deteriorate as scour and bank erosion increases. Most importantly, sediment and salt discharges could increase as off-site impacts. Since there is little evidence of off-the-road vehicular travel on public land away from population centers, the overall impacts of the "open" designation would not be significant.

Detailed impacts to water resources were reported in the San Juan River Regional Coal EIS (USDI, BLM 1984a). Generally, effects are dependent upon the total acreage mined. For this alternative the maximum federal acreage would be 14,003 acres. This is less than one percent of the total federal surface in the Resource Area. The EIS reported that potential impacts to surface water resources would not be as important as impacts to ground water resources.

Under this alternative, existing vegetative values would be maintained and protected on "M" and "C" category allotments. Improvement of vegetation on "I" category allotments by a combination of grazing management and vegetative treatments would be emphasized. In the long term, there would be an increase of 69,802 acres in good ecological condition (an increase of 133 percent over current acreage in good condition) and subsequently an improvement in vegetative cover. Overland flow velocities and storm runoff volumes during peak discharge would be reduced an average of 30 percent on key range sites (approximately 40,052 acres). This reduction in runoff would mean more on-site utilization of water, and lower amounts of suspended sediments and dissolved salts transported by runoff water. The 38,337 acres remaining in poor ecological condition (9.3 percent) would have increased sediment and salt yields and accelerated erosion rates as long-term impacts.

SUMMARY

Land ownership adjustments would not result in adverse impacts to water resources. Implementation of habitat management plans on acquired riparian tracts would benefit water resources. Impacts from fuelwood collection would be mitigated by rehabilitation measures. While the designation of approximately nine percent of the Resource Area as "limited" or "closed" to off-the-road vehicular travel would benefit water resources, designation of the remainder of the public lands within the Resource Area as "open" to off-the-road vehicular travel could result in increases in peak runoff rates and sediment and salt discharges in localized areas. Impacts of coal mining to water resources would depend upon the total acreage mined but would affect less than one percent of the federal surface. Runoff would decrease on grazing lands where ecological condition improves. Peak runoff rates would remain high and sediment and salt yields would increase on grazing lands in poor ecological condition.

Runoff would decrease on grazing lands where ecological condition improves.

AIR QUALITY

Impacts caused by resolution of issues under this alternative would not greatly differ from those described in any of the proposed RMP alternatives. The decreased quality of the air as a result of coal development, the productive oil and gas fields of northern New Mexico, and the nature of the arid ecological conditions is inherent. Environmental compliance on a case-by-case basis for those proposals that may affect air quality is designed to reduce the chance of adverse impacts. The result of high-level energy production and processing would increase the probability of localized, short-term adverse impacts due to variables such as atmospheric drainage, weather patterns, winds, and level of emissions.

Collection and monitoring of air quality related values in Class II, Prevention of Significant Deterioration areas (Bisti and De-na-zin Wilderness Areas) may be needed to mitigate effects of management actions related to air resources.

SUMMARY

Resolution of issues proposed under this alternative are not expected to cause significant impacts to air quality. It is probable that localized areas may suffer short-term degradation of existing air quality due to the cumulative effects of emissions.

SCENIC QUALITY

Proposed resolutions of the RMP issues would not result in significant adverse effects on scenic quality. This alternative is most conducive to protecting areas of high scenic quality and high visual sensitivity which are primarily located in SMAs distributed throughout the Resource Area. Designation of SMAs whose prescriptions call for VRM Class I or II management objectives would enhance the long-term protection of localized areas of quality scenic resources. Potential negative impacts could result from coal leasing near VRM Class I or II areas.

SUMMARY

The designation of additional SMAs that prescribe VRM Class I or II management objectives would enhance and protect a sample of areas that exhibit high scenic quality and high visual sensitivity.

WILDLIFE

WILDLIFE HABITAT

The resolution of the lands issue would result in the exchange or sale of 324,942 acres of public lands. Only the tracts in the Lindrith area (22,225 acres) are considered to be high-value wildlife (big game) habitat. However, many public land tracts in this area are surrounded by private land and some have no public road access. This makes cost-effective management of these tracts very difficult. Short-term effects of land ownership adjustments would be negligible. Long-term effects would depend on management practices employed by the agency or individual acquiring the land.

The eventual acquisition of 101,350 acres of high-priority wildlife habitat would improve the cost effectiveness of habitat improvement projects in the Farmington Resource Area.

11,970 acres of elk habitat would be improved in the Laguna Seca Mesa SMA.

The SMAs proposed in this alternative would provide for the protection and management of 2,953 acres of high-priority riparian habitat in the River Tracts SMA. In addition 11,970 acres of elk habitat would be improved in the Laguna Seca Mesa SMA.

Impacts of the coal issue would be the same as those described under Alternative A.

The resolution of the transportation issue would ensure that high-priority riparian areas are protected from uncontrolled off-the-road vehicular travel. Acquisition of easements to the river tracts would improve access for both management and public access.

THREATENED OR ENDANGERED SPECIES

The SMA issue would result in four special management areas for threatened or endangered species. The Bald Eagle Wintering Area SMA would protect approximately 11,970 acres of bald eagle winter roost habitat. The Reese Canyon SMA would protect 1,600 acres of potential habitat for Los Pinos milkvetch (Astragalus oocalyus) and other rare plants. Several species of rare plants including Mancos milkvetch (Astragalus humillimus) and succulent dwarf saltbush (Atriplex pleantha) would receive special management in the 7,520- acres of The Hogback SMA. Preliminary inventory results indicate that Aztec gilia (Gilia formosa) is found over a large portion (over 125,000 acres) of the Resource Area. This is the only presently known habitat in the world for this species. The potential habitat for

Aztec gilia will be considered a Special Management Area. Rather than restrict other activities in the entire SMA at this time, it has been recommended that an ACEC of approximately 6,400 acres be designated for two representative populations of Aztec gilia. All three sensitive plant SMAs would be part of an Area-wide sensitive plant Habitat Management Plan. Included in this plan will be site-specific actions to protect and, if possible, improve the habitat for rare plants. An action that will be examined in this HMP will be the fencing of key populations to protect them from off-the-road vehicular travel.

This alternative is consistent with BLM policy to protect, conserve, and manage both candidate and listed sensitive, threatened, or endangered plants.

By limiting off-the-road vehicular travel in a portion of the Aztec Gilia ACEC and The Hogback SMA, this alternative is consistent with BLM policy to protect, conserve, and manage both candidate and listed sensitive, threatened, or endangered plants. Further study is needed to determine the most effective means of reducing damage in the Aztec gilia area outside of the ACEC.

Although there is presently no evidence of off-the-road vehicular travel damage in the Bald Eagle Wintering Area or Reese Canyon SMAs, limiting off-the-road vehicular travel in these areas will provide a way to prevent possible future disturbing activities. Three roads have been seasonally closed under present management. Another 10 would be closed to protect these areas.

SUMMARY

Approximately 22,200 acres in difficult to manage tracts of high-value big game habitat are identified for disposal while 101,350 acres of habitat are identified for acquisition. Important bald eagle winter roosts would be protected. A sensitive plant HMP would be developed for the Resource Area. A total of 27,490 acres of threatened or endangered species habitat would have off-the-road vehicular travel limitations. These actions will potentially improve wildlife resources in the FRA.

WILDERNESS

The proposed actions under the lands issue provide for selected public land parcels adjacent to and within the Bisti and De-na-zin Wilderness Areas to be retained and/or acquired to aid in wilderness management. These lands would serve such uses as parking areas, scenic overviews, informational and educational displays, access areas for search and rescue operations, and wilderness rehabilitation projects. These actions would result in beneficial effects which would enhance wilderness management.

Legislative actions are designed to have a beneficial effect on wilderness resources.

There exists the possibility of having coal leases south of the De-na-zin and Bisti boundaries, as well as near the Ah-shi-sle-pah Wilderness Study Area (WSA), if the competitive tracts become leases. If tracts are leased close to wilderness resources, the impacts could adversely affect wilderness characteristics.

Legislation prohibits mechanical/motorized vehicles in designated wilderness. As a result, Bisti and De-na-zin have been "closed" to vehicle travel. The WSA has been designated as "limiting" vehicle travel to existing routes. These actions are designed to have a beneficial effect on wilderness resources.

SUMMARY

Alternative D has positive, short- and long-term effects for wilderness resources under the lands issue. The coal issue could pose adverse effects to wilderness resources depending on which tracts are eventually leased and developed.

CULTURAL RESOURCES

Development of the fuelwood and domestic coal licensing program allowing dead and down and greenwood cutting would result in moderate impacts from fuelwood gathering. Mitigation of impacts from domestic coal licensing would be treated on a case-by-case basis and would result in no adverse impacts to cultural resources.

Retention of recommended SMAs in the exchange zone would have positive effects on cultural resources.

Resolution of the lands issue will not impact cultural resource sites for lands transferred to other federal agencies. A Class III inventory and mitigation of impacts to cultural sites is required prior to exchange or sale of federal surface into non-federal ownership. An MOU with the state of New Mexico outlines mitigation procedures for consideration of cultural resources in land exchanges with the state of New Mexico. In areas where the BLM acquires surface ownership over fee (non-federal) minerals, mitigating measures should be established to ensure that federal properties are not impacted by the approval of state or other privately authorized actions.

Retention of recommended SMAs in the exchange zone would have positive effects on cultural resources through management of nationally significant cultural properties. Twenty-five Navajo Refugee Sites, nine Chaco Outliers, four Native American Traditional Use and Sacred Areas, the Chacra Mesa Complex and the East Side Rincon Site would be managed for the protection of cultural values. Implementation of these recommendations would result in a positive, long-term effect on sites in the SMAs. If sites are present in the Dunes and Head Canyon ORV SMAs, they will require mitigation through inventory and testing or excavation. This should result in no adverse impacts to sites in these SMAs.

Impacts to cultural resources for competitive coal leases that are brought forward and mined would be low to moderate. This is because the application of the multiple use screens caused areas containing sites warranting in-place preservation and which were not amenable to data recovery to be dropped from consideration. Impacts would be mitigated by inventory, testing, and excavation and would result in a determination of no adverse effect for sites in the lease area. However, vandalism is expected to increase as a result of easier access and higher population densities in the vicinity of the mines. These impacts can be minimized through public education, signing, and monitoring programs as well as with law enforcement support. In addition, vibration from blasting, mine equipment, and vehicles could affect the stability of standing masonry walls. These standing masonry walls could be impacted if mining occurs on the Star Lake East, Star Lake West, Chico Wash, Bisti 4, and Kimbeto 2 tracts. These latter effects could range from moderate to severe on a site-specific basis. Impacts to cultural resources resulting from competitive coal tract leasing are discussed in detail in the San Juan River Regional Coal EIS (USDI, BLM 1984a).

Acquisition of easements to SMAs would be given priority.

"Closing" and/or "limiting" off-the-road vehicular travel in SMAs would have a beneficial effect in protecting important cultural values in specific areas. The open designation could potentially result in negative impacts to locales where off-road travel occurs. This designation may result in unrestricted access to backcountry areas that are susceptible to pothunting and vandalism. Mitigating measures to reduce these impacts include public education, monitoring, patrol, and restricting off-the-road vehicular travel in affected and potentially affected areas. The proposed FRA 10 percent cultural resources inventory should help to identify areas impacted by ORV use.

Acquisition of easements to SMAs would be given priority and would facilitate better management of these areas, resulting in a positive effect.

Designation of right-of-way windows would have a positive, long-term effect on cultural resources by concentrating major rights-of-way in specific areas. Compliance with the National Historic Preservation Act could be achieved on a case-by-case basis.

Designation of right-of-way windows would have a positive, long-term effect on cultural resources.

SUMMARY

Under this alternative, cultural resources would have a long-term, positive effect. Protection and management of significant cultural resource sites would be more balanced with prehistoric and historic occupations represented in the management spectrum. Not carrying forward the La Plata Valley SMA could result in negative impacts to resources; however, two Chaco outliers and the East Side Rincon Site, located in this valley, would be protected through SMA designation. Exchange or sale of the Canada Larga area will transfer an area of high site density out of BLM administrative control.

Limiting or closing SMAs to ORV use results in beneficial effects to specific areas with high cultural resource values. Potential adverse impacts could occur on a site-specific basis in "open" areas if off-the-road vehicular travel results in damage to sites or structures.

PALEONTOLOGY

The sale or exchange of public lands in the exchange zone would result in the loss of BLM management on lands with known paleontological resources and lands with potential for producing fossils. Important Cretaceous and Tertiary fossil-bearing formations exposed on the surface contain fossils of mammals, lizards, crocodiles, turtles, dinosaurs, and fish. The retention of surface ownership within the Coal Belt SMA would allow for management and access by researchers to 122 square miles of public land. This area would have the potential for producing important fossils prior to and during mining. If paleo resources on exchanged lands are not available for scientific research, there would be negative impacts to paleo resources.

Retention of surface ownership within the Coal Belt SMA would allow for management and access by researchers.

Fuelwood collection would have no impact on paleo resources, however, domestic coal licenses might have both a negative impact (that of destroying fossils) and a positive effect of exposing new fossils to the surface. Overall the impacts would not be significant because of the small size of the domestic coal licenses and because they are not in areas of known important paleo resources.

The designation of four paleo SMAs would have a positive effect in protecting areas that have significant paleo resources.

There would be a short-term positive effect by allowing coal tracts to be leased and eventually mined since the coal companies would be required to inventory the paleo resources prior to mining, as well as document or collect vertebrate specimens uncovered during mining as stipulated in the MOU between the BLM and the state of New Mexico's Energy and Minerals Department.

Overall, off-the-road vehicular travel does not have a substantial negative effect on paleo resources. Designating public lands as "open" to off-the-road vehicular travel could have a slight negative impact on paleo resources as ORVs may damage the fossils through breakage and increased erosion. However, there is very little evidence of off-the-road vehicular travel in the southern portion of the Resource Area on public lands. ORV use allows access to remote fossil localities, which is a negative effect when fossil theft occurs, but has a positive effect when it allows researchers better access to the fossils.

SUMMARY

Of the issues identified, SMAs which protect important paleontological type localities would result in the greatest positive impact to paleo resources.

OUTDOOR RECREATION

Resolution of the special management area issue would contain secondary benefits and mitigation of substantial adverse effects on predominantly natural types of outdoor recreation opportunities. These opportunities would be made available to the general public through better distribution of natural areas.

A description of the impacts of resolving the coal leasing suitability assessment issue is available in Appendices N and O.

Resolution of the transportation issue regarding motorized vehicles would result in the mitigation of adverse impacts on outdoor recreation resources. Designation of Carracas Mesa, Jones Canyon, and Negro Canyon primarily for non-motorized types of recreation would benefit this type of activity. Positive effects would occur in designating the Dunes and Head Canyon SMAs and the Glade Run Trail System for those who enjoy motorized types of recreation.

SUMMARY

Selection of Alternative D would result in overall positive effects on outdoor recreation resources. Potential adverse impacts may be caused as a result of resolving the coal leasing suitability assessment issue. Short- and long-term benefits would result by designating two off-the-road motorized vehicle areas and a trail system as well as designating other SMAs.

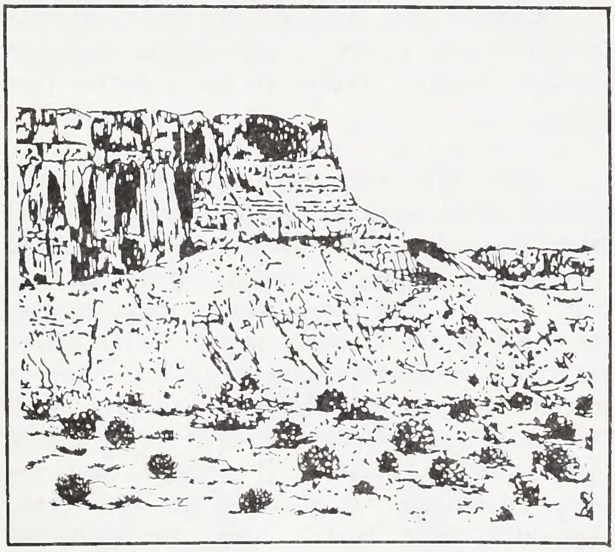
SOCIAL AND ECONOMIC CONDITIONS

Land ownership adjustments under this alternative would result in changes in tax revenue and payments in lieu of taxes. The net result of these changes would create a negative county revenue adjustment estimated at $122,000. This is a 0.4 percent decrease in the 1985 real property tax revenue. This is not a significant change compared to the total county revenue. In the long term there could be social impacts to the Navajo if gathering areas or sacred, ceremonial, or burial sites went into private non-Indian ownership.

Home use fuel availability under this alternative should have no significant social or economic impacts, either in the short or long term.

Under this alternative the special management areas proposed would result in short term, positive social impacts wiht no change in economic values for the non-Indian population. In the long term, impacts would be positive due to the preservation of social values and could be positive for economic values if tourism and recreational uses increase. For the Indian population short-term and long-term impacts may be negative if proposed uses destroy or conflict with Indian use of sacred, ceremonial, and burial sites or gathering areas.

Coal leasing suitability assessment does not indicate intentions to mine specific volumes of coal and therefore does not provide for specific data for either social or economic analysis. An estimate of community impacts or opportunities foregone can be derived by looking at figures used in the San Juan River Regional Coal EIS (USDI, BLM 1984a). It was estimated for that EIS that as many as 300 jobs may result from surface mining one million tons of coal per year. If these jobs paid an average of $17,000 per year, the annual payroll would be over $5 million per year. On the other hand since many of the coal tracts involve Navajo use areas it is important to recognize the adverse social impacts that would result as mining disrupted some traditional uses of the land. The Navajo people have maintained a pastoral lifestyle and, through herding their sheep and goats, have been able to teach the young people many of their cultural values. The Navajo concerns were stated in a report titled "A Study of Navajo Perception of the Impact of Environmental Changes Relating to Energy Resource Development" (Schoepfle et al. 1978). In this study the people of Burnham classified the principal costs as loss of livestock and land, loss of emotional and economic support of the extended family, and the loss of security in life made possible by living in one place. Livestock and grazing permits were described as most important and the means of maintaining the other two.



The transportation issue deals primarily with ORV use and designation. No economic impacts should result that would be considered significant either in the short term or the long term unless critical watershed areas are misused and erosion destroys the watershed and contributes to the destruction of downstream water developments. Some social impacts will occur as ORV users adjust to some use restrictions and as livestock operators realize that off-the-road vehicular travel is a legitimate use of public lands.

Vegetative use for livestock under this alternative is reduced by 22 percent from the last five-year average. Negative social and economic impacts will result for livestock operators in both the short and long term. Most of the livestock operators in the issue area are Navajo and livestock provides supplemental income for an estimated 330 families. The magnitude of grazing reductions in terms of dollars is not expected to be significant on a regional or local basis. The economic impacts will be long term. The social impacts will be short term but may be rather severe. The BIA had a stock reduction program 50 years ago that caused considerable social and cultural problems. A number of Navajo people were no longer able to raise sheep and those who continued had their number of animals reduced. Because of the Navajo's strong feeling toward their lands and sheep raising, this stock reduction program's impacts have not been forgotten and talk about reducing the capacity of grazing allotments revives fears and concerns.

In the short and long term the rights-of-way windows designated under this alternative would not result in adverse social or economic impacts.

SUMMARY

Although nearly every issue would have some social and economic consequences, none of the economic consequences are believed to be significant. The social consequences are somewhat harder to evaluate because they are difficult to quantify. However, the land ownership adjustment, coal leasing suitability, vegetative uses, and perhaps SMA issues have the potential of arousing social concerns among the Navajo people.

Consultation & Coordination

Chapter 4

CHAPTER 4

CONSULTATION AND COORDINATION

INTRODUCTION

The Farmington Resource Management Plan /Environmental Impact Statement (RMP/EIS) was prepared by an interdisciplinary team of resource specialists from the BLM's Farmington Resource Area (FRA) and the Albuquerque District Office.

> ***Consultation and coordination with agencies, organizations, and individuals occurred in a variety of ways throughout the planning process.***

Writing of the RMP/EIS document itself began in 1985; however, preceding the writing phase a complex process of data gathering and other preparatory activities began in 1983 (Chaco Inventory Plan, pre-planning data gathering). This process included resource inventory, public participation, interagency coordination, and preparation of a Management Situation Analysis (MSA). The MSA is on file in the Farmington Resource Area office as is documentation of the public participation and interagency coordination. Consultation and coordination with agencies, organizations, and individuals occurred in a variety of ways throughout the planning process.

The initial sections of this chapter are devoted to consultation and coordination activities carried out during the preparation of this Draft Resource Management Plan. Comments and responses will be included in this chapter in the Final RMP/EIS.

During the planning process, formal and informal efforts have been made to involve the public, other federal agencies, and state and local governments. Several points of public involvement are mandated and were complied with.

FORMAL CONSULTATION

Consultation with the U.S. Fish and Wildlife Service (USFWS) is required prior to initiation of any project by BLM that may affect any federally listed threatened or endangered species or its habitat. Consultation is required by Section 7 of the Endangered Species Act of 1973. This RMP/EIS is considered a major project, and formal consultation has been initiated. Letters of formal consultation are on file in the FRA office.

The N.M. Department of Game and Fish and the N.M. Natural Resources Department have been contacted in regard to state listed threatened or endangered wildlife and plant species. This plan is consistent with legislation protecting state listed species. Coordination and consultation with the state will be continued throughout the planning process and during implementation of the plan.

The BLM cultural resource management program operates in accordance with 36 Code of Federal Regulations (CFR), Part 800, which provides specific procedures for consultation between the BLM and the State Historic Preservation Office (SHPO). Memorandum of Agreement (MOA) NMSO-168 between the SHPO, Advisory Council on Historic Preservation and the BLM New Mexico State Office became effective October 19, 1982. This MOA incorporates procedures for exchanging information with the SHPO concerning cultural resources on public and private lands. It defines activities requiring consultation and establishes reporting standards. Similarly, the Programmatic Memorandum of Agreement for the protection of cultural resources under the federal coal management program establishes procedures and focuses on measures that protect the types of sites usually found on federal land. The SHPO has been consulted during the development of the Draft RMP/EIS.

CONSISTENCY WITH OTHER PLANS

The BLM's planning regulations require that Resource Management Plans be "consistent with officially approved or adopted resource related plans, and the policies and procedures contained therein, of other federal agencies, state and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies and programs of federal laws and regulations applicable to public lands..." (43 CFR 1610.3-2). In order to ensure such consistency, finalized plans were solicited from federal, state, and local agencies and groups as well as Tribal governments listed in Table 4-2. These same agencies and groups will receive copies of the Draft RMP and be asked to comment.

At this time there are no known inconsistencies between any of the alternatives and officially approved and adopted resource related plans of other federal agencies, state and local governments, and Indian tribes. The Carson National Forest Plan (USDA 1986) proposes a portion of National Forest land be closed to ORV/OHV traffic. BLM lands adjacent to these lands will be designated as "limited." The BLM and USFS will work together to plan for this area. The N.M. Department of Game and Fish Operational Plan is being revised and updated at the same time that this RMP is being developed. Coordination efforts are being conducted to ensure consistency between the two plans. Continuing coordination and consultation will take place during the public comment periods on the Farmington Draft RMP/EIS, Final RMP/EIS and the Record of Decision.

PUBLIC PARTICIPATION

Public participation in the Farmington RMP is a dynamic process occurring throughout the development of the plan and beyond. In addition to formal public participation steps, informal contacts occur frequently with public land users and interested persons through meetings, field trips, telephone calls or letters. All applicable public participation is documented and analyzed in the planning process and kept on file in the FRA.

A notice was published in the Federal Register on May 16, 1985, announcing the formal start of the planning process. A second notice, requesting coal and other resource information, was published in the Federal Register on May 23, 1985.

All applicable public participation is documented and analyzed in the planning process and kept on file.

On May 21, 1985, 1,500 letters were mailed detailing the time and place for public meetings and the intent to develop the Farmington Resource Area Resource Management

Plan. The purpose of the mailing was to identify major issues in the FRA and to invite the public to five public meetings. The letter requested public participation. Meeting notices were also in local newspapers and announced on several radio stations.

The five public meetings were held in mid-1985. The meetings, as listed in Table 4-1, were conducted with Navajo interpretation. These five meetings were held to develop issues and planning criteria.

TABLE 4-1: PUBLIC MEETINGS FOR ISSUES IDENTIFICATION AND PLANNING CRITERIA

LOCATION	DATE
Grants	June 20, 1985
Crownpoint	June 21, 1985
Farmington	June 24, 1985
Cuba	June 25, 1985
Gallup	July 23, 1985

Responses received from the meeting attendees and those returned by mail helped solidify the RMP's issues and focus the planning analysis on the unresolved land use allocation questions.

Newsletters outlining the planning process, along with response forms for input on RMP issues, were mailed to a list of over 1000 names in September 1985. A preliminary list of issues, together with planning criteria, was examined in the newsletter. A 40-day response period was set for interested persons to comment on the proposed planning issues and criteria.

After the final issues were identified, they were incorporated in a second newsletter and 1100 copies were mailed in April 1986 to an updated list of other agencies, businesses, organizations, grazing allottees, and individuals interested in management of the public lands in the FRA. Several changes were made as a result of response from the public to the first newsletter.

PUBLIC REVIEW OF THE DRAFT RMP/EIS

Table 4-2 is a partial listing of various federal, state and local agencies, organizations and individuals to which the Draft RMP/EIS is being sent for review and comment.

Informal coordination with the public has taken place throughout the planning process through personal contacts, phone calls, and letters.

ALLOTTEE CONSULTATIONS

In compliance with Section 8 of the Public Rangelands Improvement Act of 1978, all permittees and lessees in the vegetative uses issue area have been contacted to initiate the required consultation, coordination, and cooperation process. Allottees were contacted by letter and informed of the selective management category assigned to the allotment and the implications of this designation. Consultation meetings with allottees were scheduled at their request.

All permittees and lessees in the vegetative uses issue area have been contacted.

Preplanning efforts for the Farmington RMP included correspondence, informal consultations, and meetings with livestock grazing permittees to establish range inventory procedures and to initiate selective management categorization. The April 1986 newsletter explained allotment categorization.

TABLE 4-2: LISTING OF DOCUMENT RECIPIENTS

FEDERAL GOVERNMENT

- Department of Agriculture
    - Soil Conservation Service
    - U.S. Forest Service
- Department of the Army
    - Corps of Engineers
- Department of the Interior
    - Bureau of Indian Affairs
    - Bureau of Reclamation
    - National Park Service
    - Office of Surface Mining, Reclamation & Enforcement
    - U.S. Fish & Wildlife Service
- Department of Energy
    - Federal Energy Regulations Commission
- Environmental Protection Agency

STATE GOVERNMENT

- Bureau of Mines & Mineral Resources
- Department of Finance & Administration
    - Planning Division
    - Coordination/Clearinghouse Bureau
- Historic Preservation Bureau
    - State Historic Preservation Officer
- Energy & Minerals Department
    - Mining & Minerals Division
- Governor of New Mexico
- Health & Environmental Department
    - Environmental Improvement Division
- Land Office
- Natural Resources Department
- Department of Game & Fish
- Department of Parks & Recreation
- State Engineer's
- Congressional Delegation
- Heritage Program
- Attorney General
- Farm & Livestock Bureau
- Soil & Water Conservation Division

MAYORS

- Cities of:
    - Aztec

MAYORS (Continued)

-
    - Bloomfield
    - Farmington
    - Gallup
- Village of Jemez Springs

CITY & COUNTY COMMISSIONS & PLANNING COMMISSIONS

- Cities of:
    - Aztec
    - Bloomfield
    - Farmington
    - Gallup
- McKinley County
- Sandoval County
- San Juan County
- Rio Arriba County

SPECIAL INTEREST GROUPS

- Local ORV/OHV Constituency Group
- San Juan Cyclists
- Natural Resources Defense Council
- Native Plant Society of New Mexico
- New Mexico Cactus & Succulent Society
- New Mexico Archeological Council
- Bloomfield Kiwanis Club
- Nature Conservancy
- Wilderness Society, Southwest Region
- Sierra Club, Rio Grande Chapter
- American Motorcycle Association
- The Desert Protective Council
- New Mexico Museum of Natural History
- New Mexico Mountain Club
- Southwest Research & Information
- New Mexico Wilderness Coalition
- New Mexico Citizens for Clean Air & Water

TRIBAL GOVERNMENT

- Jicarilla Apache Tribe
- Navajo Nation and its New Mexico Chapters
- Ute Mountain Tribe
- Zuni Tribe

TABLE 4-3: LIST OF PREPARERS

NAME	RMP RESPONSIBILITY	EDUCATION	EXPERIENCE
Barbara am Ende	Paleontology	BS - Geology University of Iowa	BLM - 1 year - Paleontologist
Dan Armstrong	Fire	BA - Wildlife Management Humbolt State College, CA	BLM - 17 years - Fire Management Specialist
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Doug Burger	Team Leader	BS - Wildlife Management Texas Tech University	BLM - 8 years - Realty Specialist - Supervisory Natural Resource Specialist
Michael Candelaria	Technical Coordinator - Range, Soils, Hydrology Writer - Rangeland, Livestock Grazing	BS - Wildlife Science MS - Wildlife Science New Mexico State University	BLM - 5.5 years - - Range Conservationist - Soil Conservationist LGL Ecological Research - 1.5 years - Terrestrial Ecologist
Jack Dossett	Forestry	BS - Oklahoma State University	BLM - 24 years - Forest Management
Mike Fisher	Fire	BS - Forest Management Colorado State University	BLM - 10 years - Fire USFS - 5 years
Lindell Greer	Lands	BS - Agriculture/Range Lincoln University Jefferson City, Missouri	BLM - 8 years - Range Conservationist - Natural Resource Specialist - Realty Specialist
Kent Hamilton	Socio-Economics	BS - Agricultural Economics Utah State University	BLM - 9 years - Regional Economist BIA - 15.5 years - Economist

TABLE 4-3: LIST OF PREPARERS (Continued)

NAME	RMP RESPONSIBILITY	EDUCATION	EXPERIENCE
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William L. Overbaugh	Technical Coordinator - Physical & Human Resources Writer - Air & Scenic Quality, Outdoor Recreation	BS - Natural Resources University of Michigan MA - Outdoor Recreation University of New Mexico	BLM - 4 years - Outdoor Recreation Planner
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James M. Ramakka	Technical Coordinator - Minerals, Lands, Forestry, Wildlife Wildlife Writer - Threatened & Endangered Species, Wildlife	BS - Wildlife Science Cornell University MS - Wildlife Management University of Maine	BLM - 8.5 years - Wildlife Biologist Instructor, Environmental Technology - 2 years Peace Corps - 2 years

TABLE 4-3: LIST OF PREPARERS (Continued)

NAME	RMP RESPONSIBILITY	EDUCATION	EXPERIENCE
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Harold G. Wall	Soils	BS - Forest Management MS - Forest Soils University of Idaho	BLM - 9 years - Soil Survey - Watershed Rehabilitation - Erosion Studies - Rio Puerco RMP - District Soil Scientist
Marilu Waybourn	Writer/Editor	AA - Radio Communications Stephens, Columbia, Mo.	BLM - 1 year - Writer/Editor Public Relations -3 years Newspaper Production - 14 years
Carl Yost	Minerals	BA - English University of Nevada, Reno BA, MS - Geology Eastern Washington State College	BLM - 3 years - Solid Minerals MMS - 1 year - Resource Evaluation USGS - 4 years Industry - 3 years

TABLE 4-3: LIST OF PREPARERS (Continued)

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Appendices

APPENDIX A

SUMMARY OF MANAGEMENT FRAMEWORK PLAN DECISIONS

Two previous land-use planning documents, called Management Framework Plans (MFPs), contain planning decisions still in effect until completion of the Farmington Resource Management Plan. These plans are the San Juan MFP, which was approved on August 17, 1979, and the Chaco MFP, which was approved on September 21, 1981. This appendix summarizes the decisions that will be brought forward as continuing management guidance from both of these previous planning efforts.

A technical report was completed during the fall of 1984 evaluating each decision and determining which decisions were still applicable and appropriate for inclusion in the RMP. Each decision was either carried forward, modified or dropped. Those decisions already implemented or those that conflicted with current regulation, policy, or law are not depicted below.

SAN JUAN MFP

Resource	Decision Number	Summary
Lands	L-4.1	Remove five unauthorized structures from pubic lands (in San Juan County) for public safety and improved management.
Lands	L-4.2	Resolve the Arnold Ranch occupancy trespass.
Lands	L-4.3	Resolve the agricultural trespass occurring in T.29N., R.10W., Secs. 26 and 27 NMPM.
Lands	L-4.5	Resolve Navajo trespass occupancies within the Resource Area by exchange.
Lands	L-5.1	Develop activity plans for existing communication sites on South Bluff, south of Aztec, Lybrook, south of Blanco and on Huerfano Mountain.
Lands	L-6.2	Determine the access needs of each program and incorporate these needs into a transportation plan. Also, identify and rehabilitate all unnecessary roads.

Resource	Decision Number	Summary
Minerals	M-1.1	Review all lists of parcels submitted for (1) simultaneous drawing, (2) regular competitive, and (3) non-competitive offer to lease filings.
Minerals	M-3.1	Designate free-use sites for material disposal, taking into account spacing between sites to reduce haul costs.
Forestry	F-1.1	Conduct a release thinning and a salvage cut on 3,830 acres (Alternatives A, C and D) of productive forest land in the Laguna Seca Mesa area.
Forestry	F-1.2	Conduct salvage logging and weeding operations on nonproductive forest lands when possible, depending on market demand and lumber industry interest.
Forestry	F-2.1	Conduct an intensive woodlands product inventory.
Range	RM-1.1	Develop a transportation system which will serve the needs of the Range Management Program.
Range	RM-1.3	Implement control measures on prairie dog populations where critical resource damage is occurring.
Range	RM-2.1	Provide forage for 23 wild and free-roaming horses on the Rosa Community Allotment.
Range	RM-2.4	Develop a cooperative agreement with the Carson National Forest for the protection and administration of wild horses.
Watershed	W-1.1	Increase or maintain protective ground cover on approximately 137 allotments by employing intensive grazing management. Priority areas are Gobernador, Largo, Pine and Cereza Creek watersheds.

SAN JUAN MFP (continued)

Resource	Decision Number	Summary
Watershed	W-1.2	Restrict surface-disturbing activities on identified fragile watersheds and manage for watershed values.
Watershed	W.1.4	Treat approximately 6,623 acres of big sagebrush by spraying with herbicides.
Watershed	W-1.5	Implement watershed tillage practices on 3,331 acres of grassland or treated sagebrush sites in the planning unit.
Watershed	W-1.6	Install water control structures where feasible. This action may involve detention dams or a series of rock and wire brush checks.
Watershed	W-1.10	Continue to study rehabilitation measures for oil and gas drilling pads where past efforts have not been successful.
Watershed	W-1.11	Maintain existing water control structures.
Watershed	W-1.12	Work with state and local governments to ensure that the dangers and impacts of flood flows from public lands are recognized.
Watershed	W-1.15	Monitor the water quality of the larger ephemeral drainages with streamflow stations and peak flow gages.
Watershed	W-2.3	Conduct a water quality survey of all developed ground waters and potential ground water developments such as seeps or artesian flows.
Watershed	W-2.5	Ensure that proper disposal of toxic waste from oil and gas wells is accomplished.
Watershed (Paleo.)	W-4.1	In areas of intensive development, periodically harvest fossil mater-

SAN JUAN MFP (continued)

Resource	Decision Number	Summary
Watershed (Paleo.)	W-4.1 (Cont.)	ials. These areas are: Bohanon Canyon, Kutz Canyon, Lybrook, Gobernador, and Cereza Canyon.
Watershed (Paleo.)	W-4.4	Provide intensive management and protection of paleontologial resources found in ACECs.
Wildlife	WL-1.2	Designate bald eagle habitat areas around Navajo Dam and upper end of Animas and La Plata rivers for special management consideration.
Wildlife	WL-2.1	Acquire deeded lands to be managed as key big game seasonal ranges.
Wildlife	WL-2.2/2.3	Continue to do mechanical treatments of sagebrush and pinyon-juniper woodlands for wildlife habitat improvement.
Wildlife	WL-2.6	Design livestock grazing systems on big game year-long ranges to increase total composition of cool season grasses, forbs, and browse.
Wildlife	WL-2.14/4.4	Initiate range and wildlife water projects with a goal of providing 384 acre-feet of water for big game.
Wildlife	WL-2.18	Within known antelope ranges, do not authorize changes in kind of livestock from cattle to sheep.
Wildlife	WL-2.21	Restrict surface-disturbing activities on designated wildlife winter ranges from December 1 through March 30.
Wildlife	WL-4.5	Fence one to five acres in drainages above new stock ponds and erosion control structures to provide for game bird habitat.
Wildlife	WL-5.1	Retain public land river tracts for incorporation in the San Juan, Animas, and La Plata River Habitat Management Plans.

SAN JUAN MFP (continued)

Resource	Decision Number	Summary
Recreation	R-2.1/3.1	Develop a River Management Activity Plan for the San Juan and Animas River tracts to develop recreation opportunities.
Recreation	R-8.1	Develop a cooperative management plan with other state and federal agencies for management of public lands around Navajo Lake.
Recreation	R-9.1	Develop a Recreation Area Management Plan for Angel Peak Recreation Area.

CHACO MFP

Resource	Decision Number	Summary
Lands	L-6.1 thru 6.5	Complete withdrawal reviews on all BIA/Indian holdings off-reservation.
Lands	L-8.1	Encourage exchange proposals for the scattered tract public lands.
Minerals	M-3.1 thru 3.6	Review the withdrawals of PLO 2198 and EO 1483.
Range	RM-2.2	Complete a cost/benefit analysis on treating big sagebrush in the east pasture of the Escavada Allotment AMP.
Watershed	W-1.1	Quantify all BLM water use and secure state appropriative water rights.
Watershed	W-1.2	Protect the physical and legal availability of all existing water sources on federal coal leases by appropriate lease stipulations.
Watershed	W-1.3	Develop coal lease stipulations or other methods for BLM acquisition of water wells used for reclamation or energy development after lease abandonment.

CHACO MFP (continued)

Resource	Decision Number	Summary
Watershed	W-2.1	Reduce sediment and salinity in surface runoff by including best management practices in all activities in areas which contribute more than one AF/mi^2/yr of sediment.
Watershed	W-2.2	Close unnecessary roads.
Wildlife	WL-1.1/1.2	Establish suitable buffer zones around eagle and falcon nests. Also, do not allow rodent control near active eagle nests.
Recreation	R-1.4	Designate Chacra Mesa for special management consideration.
Cultural	CR-2.4	Conserve the following sites for future use: Casamero, Halfway House, Kin Nizhoni, Pierre's Ruin and Shephard Site.
Cultural	CR-3.3	Manage and protect the Chacoan Outlier system as a special management area.
Paleontology	P-1.1	Badlands special management areas will be identified and protected.

APPENDIX B

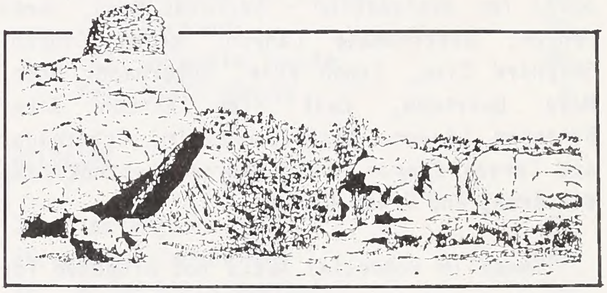
SPECIAL MANAGEMENT AREAS

INTRODUCTION

This appendix contains information on the Special Management Areas (SMAs) included in this Resource Management Plan. The SMAs include areas identified in existing land-use plans as well as newly proposed areas requiring special management.

The text for each SMA includes a general description, management goals, and management prescriptions as well as a corresponding location map (sensitive resource values may not be mapped). The descriptive narratives of each SMA provides generalized background information on the area. The management goals state the general emphasis for administration. In an attempt to direct the necessary funding toward on-the-ground management of special resources, management prescriptions for each SMA are generally listed in the order in which they are targeted for implementation. Some SMAs will require activity level planning, therefore, the implementation order of their prescriptions is designed to be flexible in adapting to new information. Detailed activity plans, to be developed after RMP approval, will contain more specific types of information. It is important to note that information described in this document is subject to modification during activity level planning. Where possible, management prescriptions for SMAs will be implemented upon RMP approval. Some of the prescriptions may be implemented simultaneously regardless of their order but ORV designations and implementation plans, mineral withdrawals, and land actions will usually be carried out first.

The prescription for implementing ORV designations after RMP approval will include a Resource Area-wide map/brochure with accompanying narrative to provide public information on where ORV use is acceptable or unacceptable. On-the-ground regulatory signing will be implemented in all SMA's restricting ORV use and informational/educational signing will be placed in selected locations designated as "open" to provide public awareness of possible effects of off-the-road vehicle travel. More detailed ORV designation steps will be prepared and included for those SMAs requiring activity level planning.



The following table summarizes the number of formal and administrative designations by RMP alternative (note: the column totals will not equal the total number of Special Management Areas because of complementary designations within the same SMA):

DESIGNATION CATEGORY	ALT. A	ALT. B	ALT. C	ALT. D
Formal Designation				
Designated ACEC	2	21	2	21
Designated Wilderness	2	2	2	2
Research Natural Area	1	2	1	2
Recreation Area	2	2	1	2
Scenic Area	1	1	0	0
Wilderness Study Area	1	1	1	1
Administrative Designation				
Special Recreation Management Area	4	2	3	4
Special Management Area	10	19	2	20
Off-Road Vehicle Area	0	0	2	2
ORV Trail Segments	0	0	4	1

During the RMP process, 36 Potential ACECs were evaluated and are classified as follows:

-- Two designated ACECs - Simon Canyon and Torrejon Fossil Fauna exist in current land use plans.

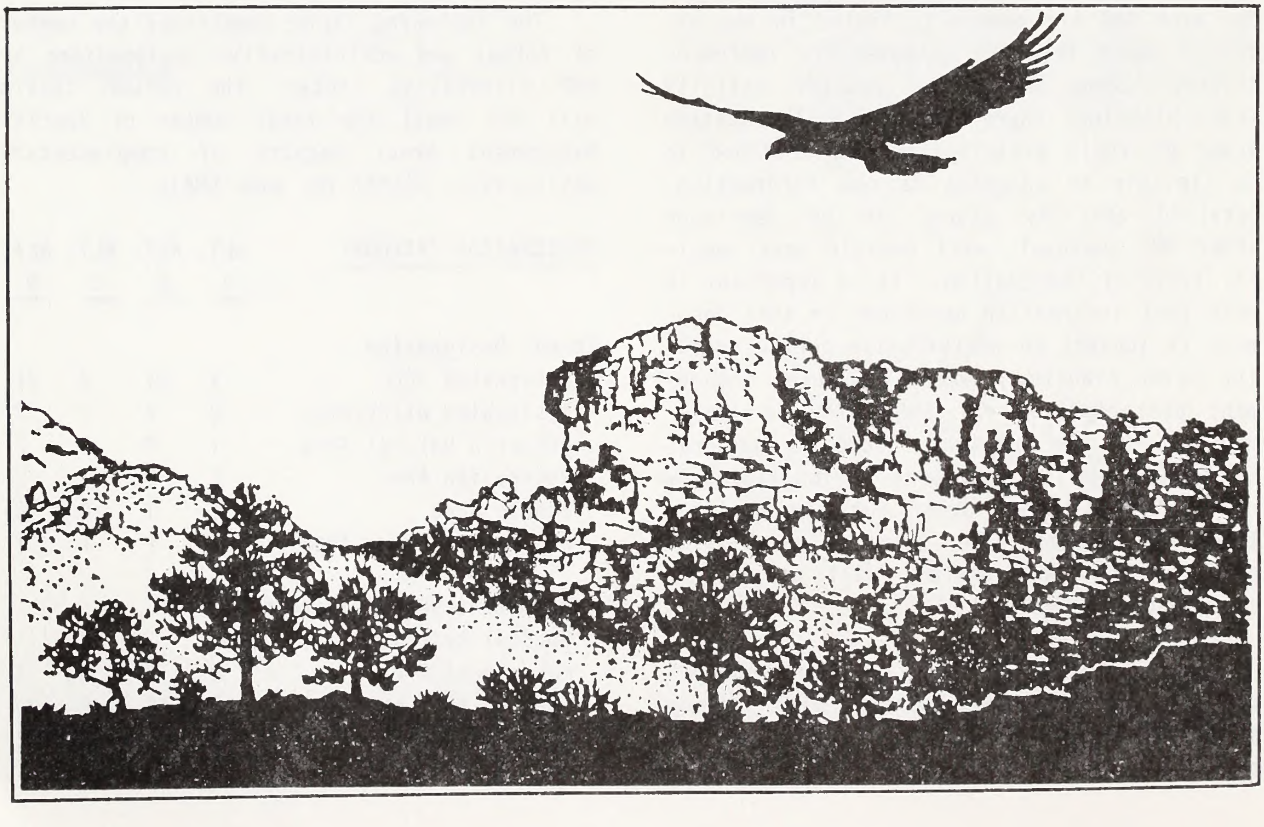
-- Nineteen Potential ACECs are proposed for designation in the RMP - Angel Peak, Badlands, Log Jam, Lost Pine, Crow Canyon District, Hooded Fireplace and Largo School District, Tapacito and Split Rock District, Frances Ruin, Christmas Tree Ruin, San Rafael Canyon, Salt Point, Pierre's Site, Halfway House, Twin Angels, Casamero Community, Chacra Mesa Complex, Hogback, Aztec Gilia, and Bald Eagle.

-- Fifteen Potential ACECs are not proposed for designation - Carracas Mesa, Jones Canyon, Rattlesnake Canyon, Negro Canyon, Shephard Site, Simon Ruin, Gobernador Knob, Mesa Quartado, East Side Rincon Site, Bohannon Canyon, Bisti/De-na-zin, Gobernador and Cereza Canyon, Kutz Canyon, Lybrook Fossil Area, and Reese Canyon.

These 15 Potential ACECs not proposed for designation either did not meet management requirements for designation status or were proposed for an alternate designation. Eight of these areas are proposed for SMA status (Carracas Mesa, Jones Canyon, Negro Canyon, Gobernador Knob, Mesa Quartado, East Side Rincon Site, Kutz Canyon,) and Reese Canyon is proposed as a Research Natural Area. Two of these areas (Simon Ruin and Shephard Site) were incorporated into larger ACECs. It was determined that the remaining five areas (Rattlesnake Canyon, Bohannon Canyon, Bisti/De-na-zin, Gobernador and Cereza Canyon and Lybrook Fossil Area) and their respective resource values would best be protected under existing policies and guidance.

Justification for proposing or not proposing a Potential ACEC for designation is documented in ACEC Worksheets which are available for review at the FRA Headquarters.

The SMAs are listed on the following page and discussed in the same order. Since certain SMAs are carried forward in some alternatives and not others, the alphabetical designation of the alternative(s) in which the particular SMA appears is listed after the name.



Name	Alternative
RECREATION	
1. Dunes ORV Play Area	CD
2. Head Canyon ORV Competition Area	CD
3. Simon Canyon Recreation Area	ABCD
(a) Simon Canyon ACEC	ABCD
4. Angel Peak Recreation Area	ABD
(a) Angel Peak ACEC	BD
5. Carracas Mesa	ABD
6. Jones Canyon	ABD
7. Rattlesnake Canyon	A
8. Negro Canyon	ABD
9. Red Rocks Bluff	AB
10. Glade Run Trail System	CD
WILDERNESS	
11. Bisti Wilderness	ABCD
(a) Badlands ACEC	BD
12. De-na-zin Wilderness	ABCD
(a) Log Jam ACEC	BD
(b) Lost Pine ACEC	BD
13. Ah-shi-sle-pah Wilderness Study Area	ABCD
CULTURAL RESOURCES	
14. Navajo Refugee Sites (25)	BD
15. Native American Traditional Use & Sacred Areas (6)	
(a) Gobernador Knob	ABD
(b) Tanner Lake Battlefield	BD
(c) Crane Petroglyphs	B
(d) Salt Point ACEC	ABD
(e) Mesa Quartado	A
(f) Huerfano Mesa	ABD
16. La Plata Valley	B
(a) East Side Rincon Site	BD
17. Canada Larga	B
18. Chaco Outliers Group (9)	
(a) Kin Nizhoni	ABCD
(b) Pierre's Site ACEC	ABCD
(c) Halfway House ACEC	ABCD
(d) Twin Angels ACEC	ABCD
(e) Jacques Site	ABCD
(f) Morris 41	ABCD
(g) Andrews Ranch	ABCD
(h) Holmes Group	ABCD
(i) Casamero Community ACEC	ABCD
19. Chacra Mesa Complex ACEC	BD
FORESTRY	
20. Laguna Seca Mesa	CD
MINERALS	
21. Beechatuda Tongue	BD
22. Coal Belt	CD
LANDS	
23. Right-of-Way Windows (5)	
(a) Torreon	BD
(b) Continental Divide	BD
(c) Escavada	BD
(d) Betonnie Tsosie	BD
(e) Bisti Bypass	B
WILDLIFE	
24. The Hogback ACEC	BD
25. Reese Canyon RNA	BD
26. Aztec Gilia Habitat	B
(a) Aztec Gilia ACEC	BD
27. River Tracts	BD
28. Bald Eagle Wintering Area	BD
(a) Bald Eagle ACEC	BD
PALEONTOLOGY	
29. Bohanon Canyon	A
30. Bisti/De-na-zin	A
31. Gobernador & Cereza Canyon	A
32. Torrejon Fossil Fauna ACEC	ABCD
33. Kutz Canyon Paleontological Area	ABD
34. Betonnie Tsosie	BD
35. Fossil Forest Research Natural Area	ABCD
36. Lybrook Fossil Area	A
WATERSHED	
37. Upper Rio Puerco Watershed	B
38. Farmington Lake Watershed	BD

1. Dunes ORV Play Area

GENERAL DESCRIPTION:

The Dunes ORV Play area comprises about 1,000 acres of land just south of Farmington, New Mexico. Public access is provided from State Highway 371 along moderate to steep unmaintained routes.

The south, east, and west boundaries of the area are well-defined by steep canyon walls that give way to talus slopes. A wide range of topographic relief is available in the form of wide sandy washes, rock-filled arroyos, sparsely vegetated hills, and moderate to steep slopes consisting of loose rock and solid canyon walls. Vegetation is minimal with the major species being common grasses and juniper trees.

Oil and gas exploration and off-road vehicle activity make up the major use of the area. Competitive events such as hill climbs are popular among local residents, but the area is mainly used by ORV enthusiasts who enjoy a variety of motorized recreation opportunities. Diverse landforms challenge both man and machine. This use seems well suited for such isolated rugged canyon country located near a populated urban environment.

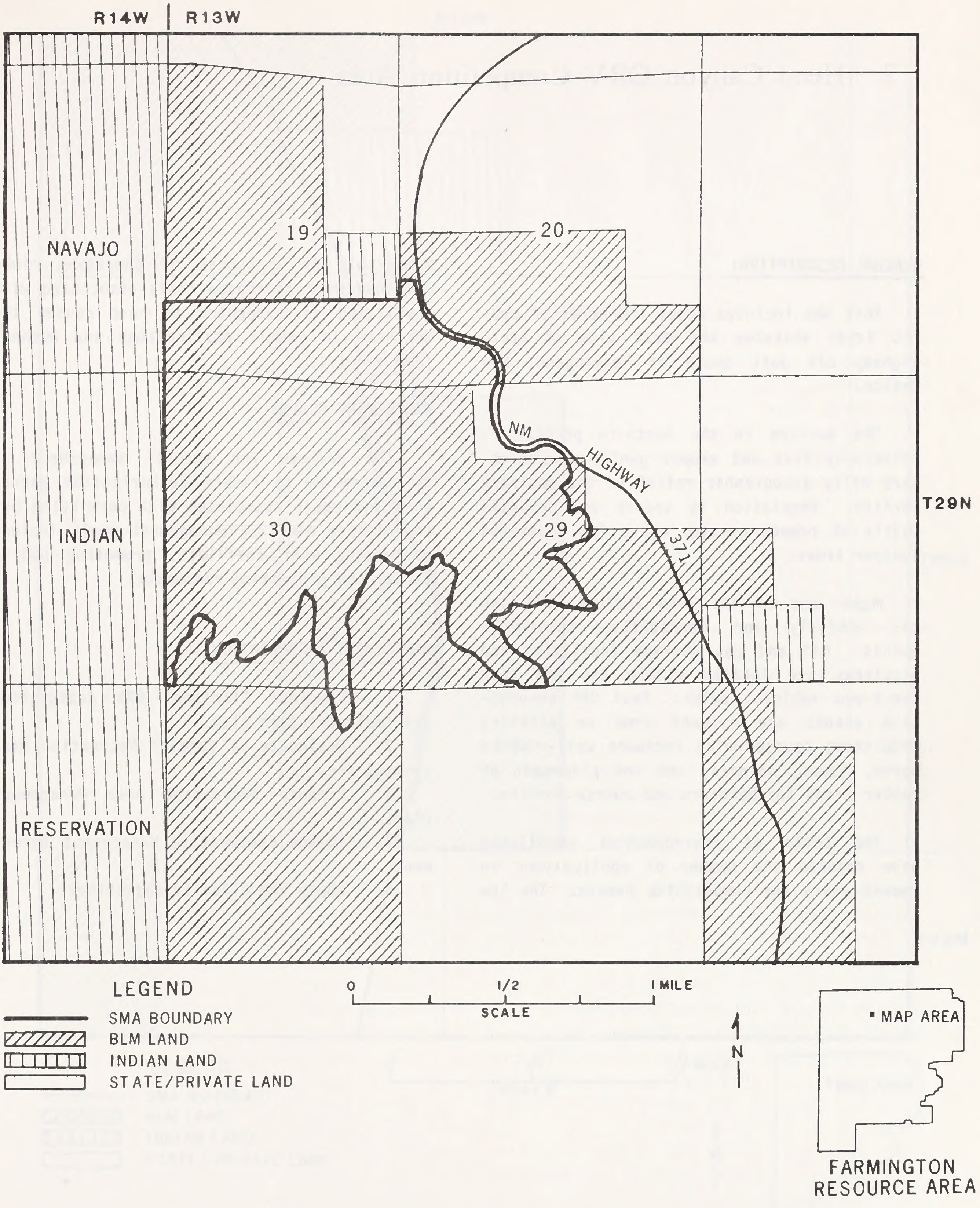
Even though actual visitor use is unknown, observation of weekend users and inventory of the many well-defined vehicle trails indicate moderate to intensive ORV use. Scattered home sites to the north represent potential problems. Noise and trespassing have been reported due to uncontrolled ORV use. Auto wreckage and scattered trash exist below the escarpment along State Highway 371.

MANAGEMENT GOALS:

The purpose of management will be to supply an opportunity for an expressed public need near the city of Farmington. Administration is intended to be non-supervisory with minimal restrictions and facilities as necessary to meet the goals of minimizing user conflicts, promoting public safety, and protecting resources.

MANAGEMENT PRESCRIPTIONS:

1. Complete "open" ORV designation and implementation plan.
2. Acquire easement and non-BLM inholdings.
3. Designate as Special Recreation Management Area.
4. Prepare Recreation Area Management Plan.
5. Pursue Cooperative Management Agreement.
6. Apply VRM Class IV objectives.
7. Complete Class II cultural resource inventory.



MAP B-1

DUNES ORV PLAY AREA

2. Head Canyon ORV Competition Area

GENERAL DESCRIPTION:

This SMA includes about 150 acres of public lands abutting the east side of State Highway 371 just south of Farmington, New Mexico.

The terrain in the northern portion is relatively flat and slopes gently upward toward hilly topographic relief in the southern portion. Vegetation is sparse and consists mainly of common grasses and a few scattered juniper trees.

Major use of the area includes oil and gas activity and competitive motorcycle events. Oil and gas storage facilities and pipelines are located within the SMA near two-track vehicle routes. Past ORV competitive events are evident from an existing moto-cross course which includes well-rounded berms, jumps, corners, and the placement of rubber tires for barriers and course markers.

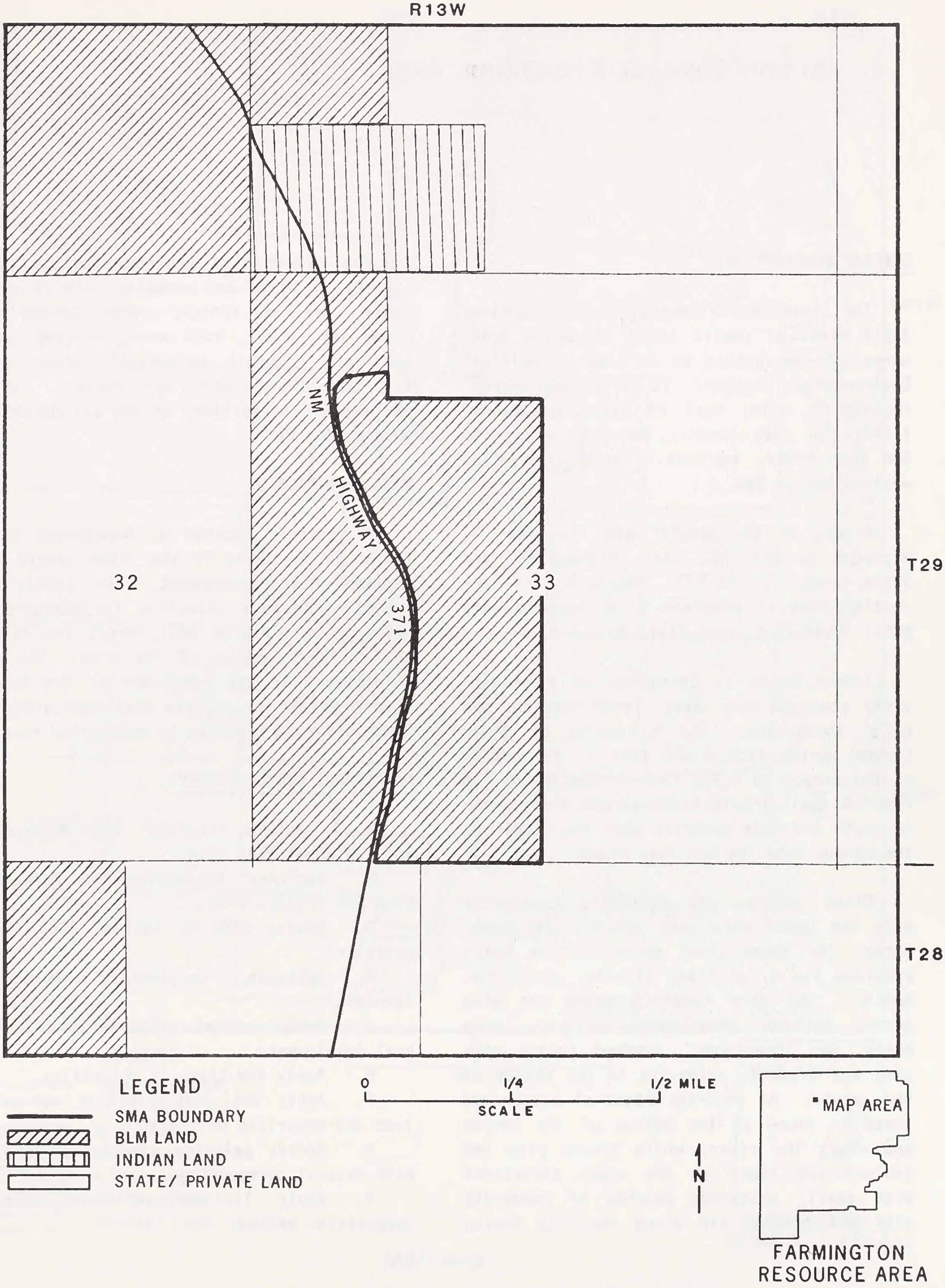
The costs of environmental compliance have reduced the number of applications in recent years for competitive events. The low membership in a number of competing clubs combined with increased costs associated with permitting is suspected to have caused the decrease in permit applications and authorized events.

MANAGEMENT GOALS:

The purpose for special management of this area is to reduce authorization paperwork and costs associated with permitting ORV competitive events. Management goals include minimizing user conflicts, promoting public safety and protecting resources.

MANAGEMENT PRESCRIPTION:

1. Complete "limited" ORV designation and implementation plan.
2. Designate as Special Recreation Management Area.
3. Prepare Recreation Area Management Plan.
4. Pursue Cooperative Management Agreement.
5. Apply VRM Class IV objectives.



MAP B-2

HEAD CANYON ORV COMPETITION AREA

3. Simon Canyon Recreation Area

GENERAL DESCRIPTION:

The Simon Canyon Recreation Area contains 3,811 acres of public lands, of which 3,491 acres are designated as an Area of Critical Environmental Concern. It is located approximately 25 miles east of Aztec and Bloomfield, San Juan County, New Mexico, on the San Juan River, two and three-quarter miles west of Navajo Dam.

Access to the general area is via U.S. Highways 64 and 550, State Highway 44, and State Roads 173 and 539. Access to the Recreation Area is provided by a two-mile long public road that joins State Road 173.

Simon Canyon is characterized by moderately steep to very steep, rough, broken, and hilly topography. The elevation of Simon Canyon varies from 5,800 feet at the bottom of the canyon to 6,275 feet at the top of the rim. A small intermittent stream flows north to south and then westerly down the middle of the canyon into the San Juan River.

Plant species are generally consistent with the Upper and Lower Sonoran Life Zone, except for those areas where surface water provides for a localized riparian plant community. The more common grasses are blue grama, western wheatgrass, galleta, ring muhly, and three-awns. Various cactus species are present, primarily in the bottom of the canyon. An even-age stand of cottonwood trees is found at the bottom of the canyon and along the river, while pinyon pine and juniper are found at the upper elevations with small, scattered patches of ponderosa pine and Douglas fir along the high canyon rims.

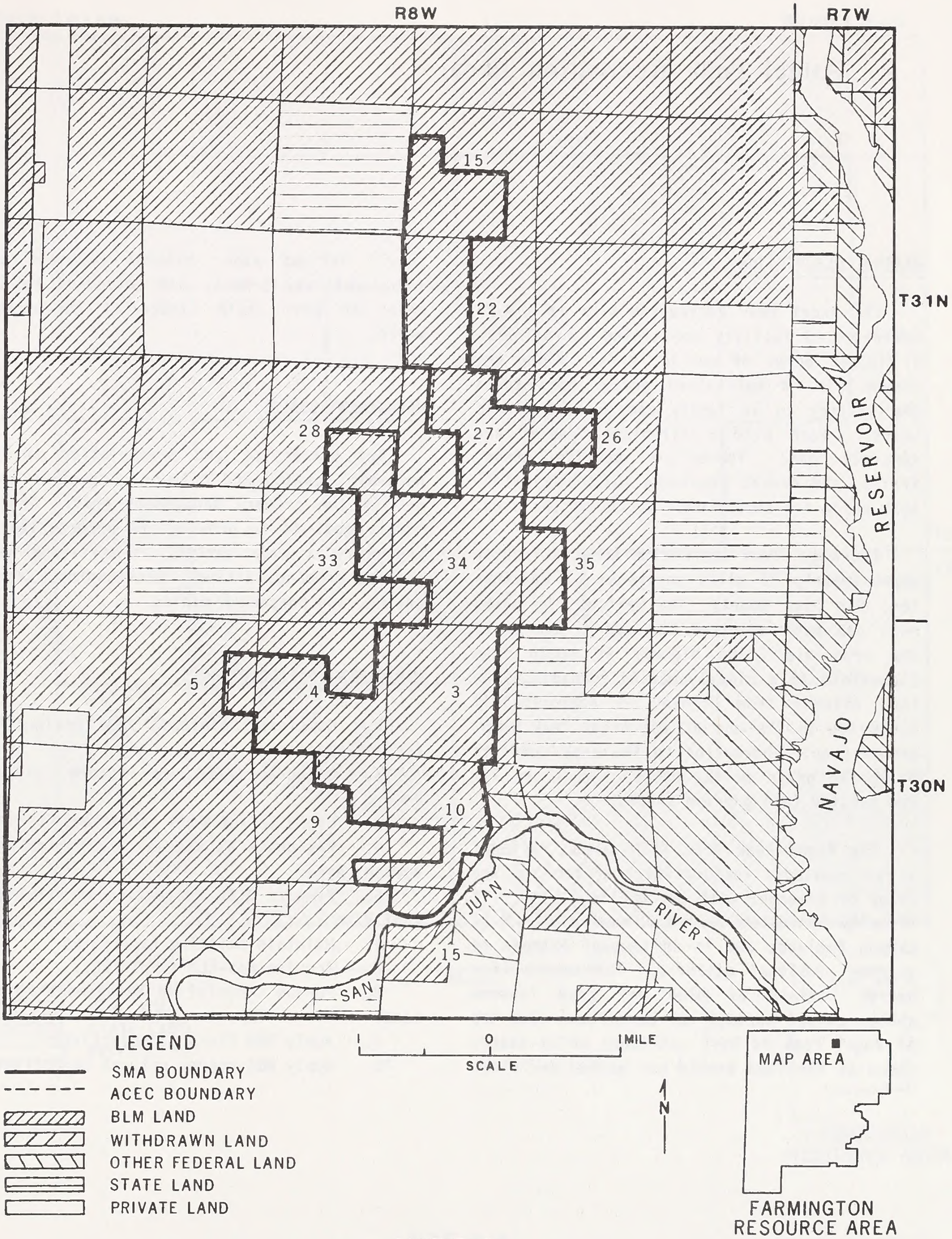
The canyon also provides habitat for a variety of birds and mammals, such as golden eagle, prairie falcon, great horned owl, scrub jay, quail, rock wren, spotted ground squirrel, mountain cottontail, skunk, gray fox, porcupine, coyote, and beaver. The upper and middle portions of the canyon provide shelter for deer.

MANAGEMENT GOALS:

A detailed account of management objectives can be found in the Simon Canyon Recreation Area Management Plan (USDI, BLM 1985e). The main objective for managing the ACEC is to preserve and protect the natural and cultural values of the area. The main objectives for the remainder of the Recreation Area are to reclaim disturbed areas and limit off-road vehicles to maintained roads.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Implement Recreation Area Management Plan and Project Plan.
3. Revise RAMP to include ACEC implementation.
4. Maintain Cooperative Management Agreement.
5. Apply special stipulations for mineral development.
6. Apply VRM Class II objectives.
7. Apply ROS semi-primitive non-motorized and motorized objectives.
8. Modify existing structures to blend with natural surroundings.
9. Apply limited/conditional wildfire suppression methods.



MAP B-3

SIMON CANYON RECREATION AREA

4. Angel Peak Recreation Area

GENERAL DESCRIPTION:

The Angel Peak Recreation Area is a BLM-administered facility containing approximately 10,240 acres of public lands. Along the canyon rim, a maintained gravel road takes the visitor to 16 family camping and picnic units - each with a fireplace, table, and concrete pad. There are parking areas, trails, and fenced overlooks which help visitors enjoy the exceptional vistas of the area.

The Angel Peak Recreation Area is located approximately 35 miles southeast of Farmington, San Juan County, New Mexico. An easement has been acquired for public access to the area via State Highway 44 south from Bloomfield to a clearly-marked turn-off. The road extends from Highway 44 approximately 6.5 miles to the end of the Angel Peak Campground Loop. Vegetation in the area consists of sparse grass on the hills. Trees are few and twisted into gnarled shapes.

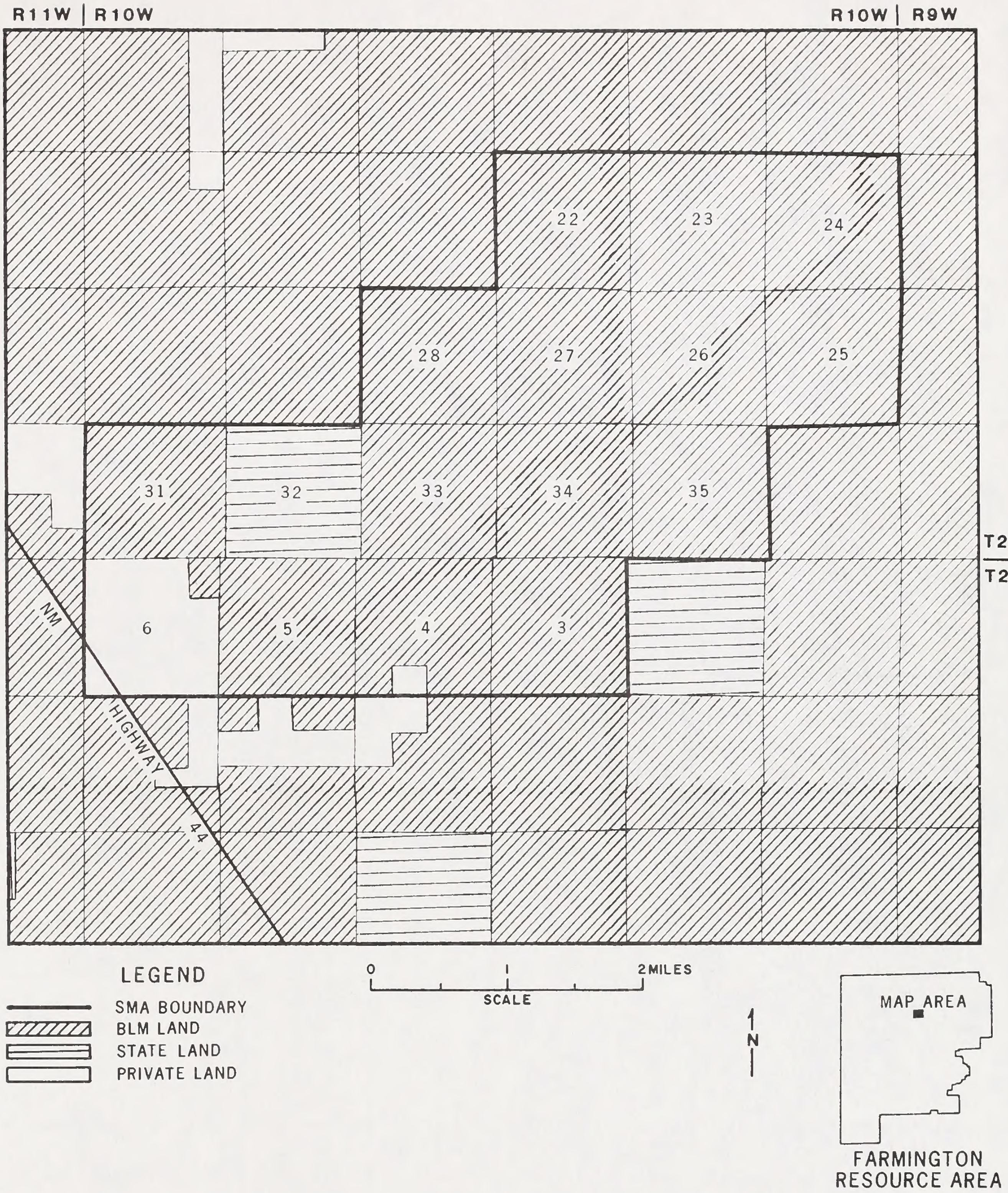
The Angel Peak ACEC (500 acres) includes a rare geologic feature which appears as the shape of an angel with one uplifted wing. It visually dominates the area known as the Kutz Canyon Badlands and is an unusual example of extreme erosional patterns. The canyon is a barren badland of blue and gray layered shale, carved through the centuries. The tip of Angel Peak is hard sandstone which stands alone as the land around was washed and blown away. Various other mineral deposits add reds, yellows, browns, and lavenders to the blue and gray shale strata of the canyon walls.

MANAGEMENT GOALS:

The protection and preservation of the natural, scenic, and outdoor recreation values is the primary management goal. A secondary goal is to provide the opportunity to engage in a wide variety of activities including camping, hiking, rockhounding, sightseeing, and horseback riding.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw ACEC to future mineral entry.
3. Close to fuelwood gathering.
4. Designate as Special Recreation Management Area.
5. Prepare ACEC Recreation Area Management Plan.
6. Maintain existing facilities.
7. Acquire non-BLM inholdings.
8. Pursue Cooperative Management Agreement.
9. Apply VRM Class II objectives.
10. Apply ROS roaded natural objectives.



MAP B-4

ANGEL PEAK RECREATION AREA

5. Carracas Mesa

GENERAL DESCRIPTION:

This backcountry territory, recognized in the San Juan MFP (USDI, BLM 1979c) as a potential ACEC (3,000 acres), is carried forth into Alternative A. An enlarged area (7,000 acres) with the same name is proposed as an SMA in Alternatives B and D of the RMP.

The Carracas Mesa SMA is bordered by Navajo Reservoir to the west, the state of Colorado to the north, and Carson National Forest to the east. The SMA is somewhat removed with restricted access due to the surrounding land ownership, natural landscape and unmarked primitive routes. Public access is possible from the south.

A Recreation Opportunity Spectrum inventory describes outdoor recreation opportunities to be in the semi-primitive motorized class. Day hunting is the most common activity known to occur. Other activities may include backpacking, snowmobiling, vehicle trail riding, and nature appreciation.

Wildlife of the Carracas Mesa SMA is typical of the pinyon-juniper and ponderosa pine habitat. However, this area is special in the Resource Area because of its relatively undisturbed natural environment.

Wintering big game is the most visible wildlife use with elk numbering 150-300 animals in winter months and mule deer averaging 400 to 800 animals. Snows in Colorado drive animals down into this area beginning in late November. Mountain shrubs and grass, found in clearings, and seedings provide winter forage. This area has been recommended by the BLM and USFS as a trophy mule deer hunting unit.

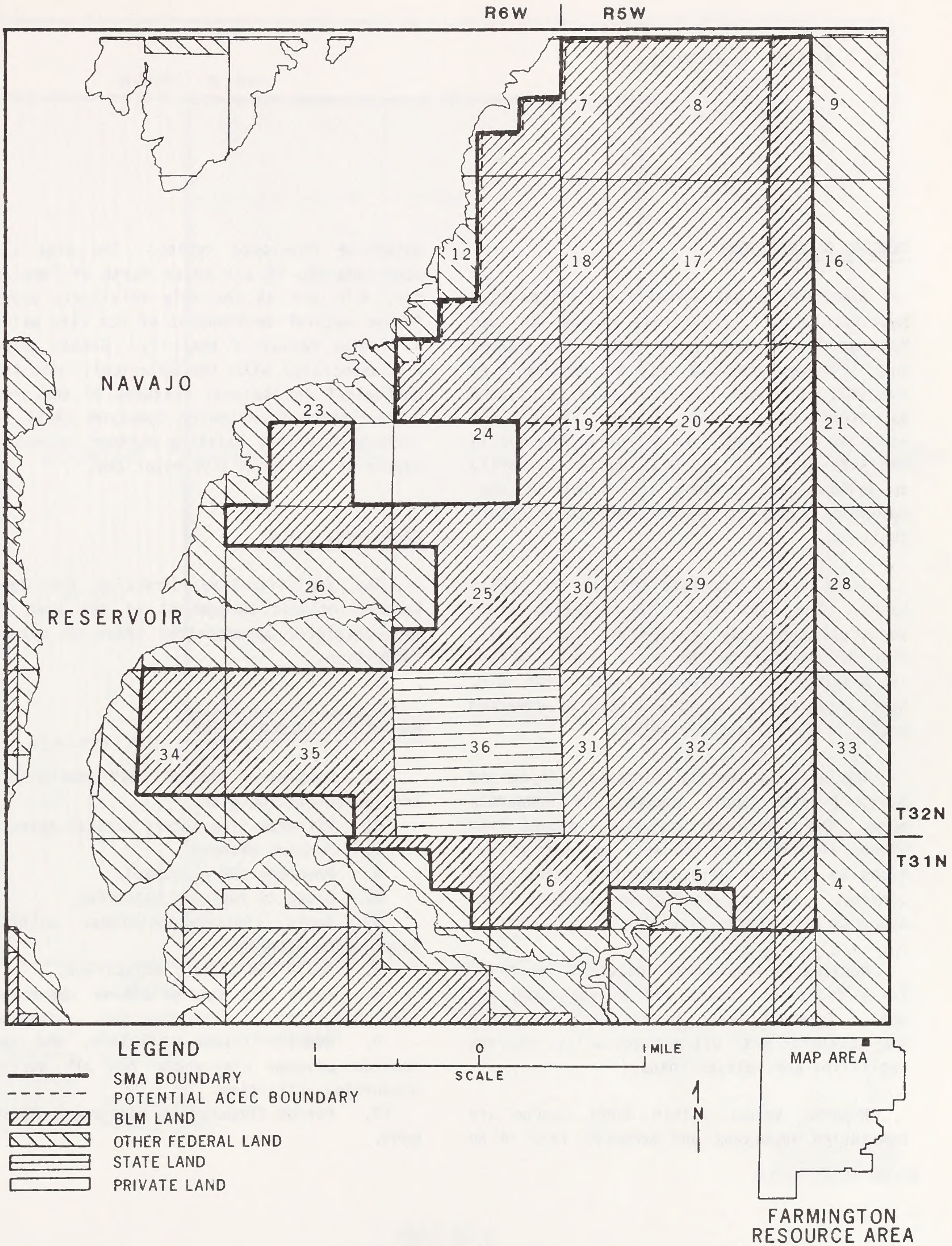
Mountain lion numbers are unusually high in the Carracas Mesa SMA and adjoining areas of the Carson National Forest. Twelve lions were taken off the forest by hunters in the 1985 season.

MANAGEMENT GOALS:

Administrative emphasis for management of the Carracas Mesa SMA will be for semi-primitive non-motorized and motorized outdoor recreation opportunities.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw from future mineral entry.
3. Acquire easement and non-BLM inholdings.
4. Preclude ROW placement.
5. Close to fuelwood gathering.
6. Apply limited/conditional wildfire suppression methods.
7. Apply VRM Class I objectives.
8. Apply ROS semi-primitive non-motorized and motorized objectives..
9. Require Visual, Wildlife, and Recreation program clearances for all surface disturbing activities.
10. Pursue Cooperative Management Agreement.



MAP B-5
CARRACAS MESA

6. Jones Canyon

GENERAL DESCRIPTION:

Jones Canyon was formally identified as a potential ACEC (3,210 acres) in the San Juan Management Framework Plan (USDI, BLM 1979c) and is brought forward into Alternative A of the RMP. Critical resources were identified as natural and wildlife values. About 2,489 acres of Jones Canyon is being recommended in RMP Alternatives B and D as an SMA primarily to enhance and protect semi-primitive non-motorized types of outdoor recreation opportunities.

Jones Canyon consists entirely of public lands. The area abuts the Colorado state border to the north and the Ute Mountain Indian Reservation to the west. Public access is provided by proceeding west from N.M. State Highway 170 along a system of unmarked graded and unmaintained routes.

The area is heavily forested (pinyon and juniper) with small pockets of ponderosa pine. The topography generally slopes from higher elevations in the west to lower elevations in the east with dissecting steep-sided canyons. The pinyon-juniper habitat site supports large herds of wintering mule deer.

Noticeable intrusions include a few primitive two-track routes and an abandoned gas well. Adjacent lands to the east and south are scattered with oil and gas wells, storage facilities and related roads.

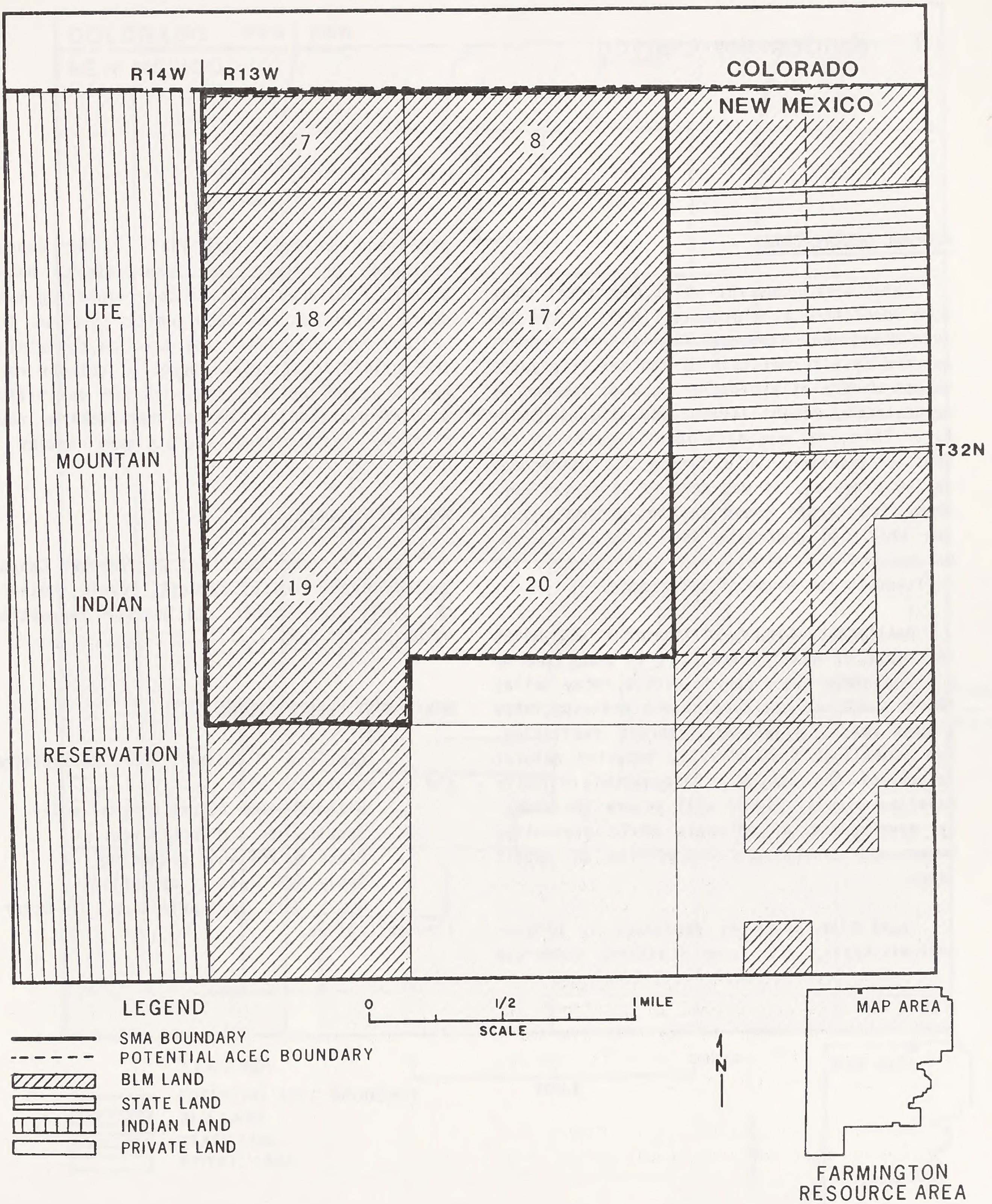
Natural values within Jones Canyon are considered important and somewhat rare in an otherwise developed region. The area lies approximately 14 air miles north of Farmington, N.M. and is the only relatively undisturbed natural environment of its size within a 30-mile radius of the city. Scenic values are associated with the botanical, wildlife, geological and natural features of the area. A Recreation Opportunity Spectrum (ROS) Inventory describes existing outdoor recreation supply as semi-primitive motorized.

MANAGEMENT GOALS:

The administrative direction for Jones Canyon includes management of the area for semi-primitive nonmotorized types of outdoor recreation.

MANAGEMENT PRESCRIPTIONS:

1. Complete "closed" ORV designation and implementation plan.
2. Withdraw from future mineral entry.
3. Acquire easement.
4. Preclude ROW placement.
5. Close to fuelwood gathering.
6. Apply limited/conditional wildfire suppression methods.
7. Apply VRM Class I objectives.
8. Apply ROS semi-primitive non-motorized objectives.
9. Require Visual, Wildlife, and Recreation program clearances for all surface disturbing activities.
10. Pursue Cooperative Management Agreement.



MAP B-6
JONES CANYON

7. Rattlesnake Canyon

GENERAL DESCRIPTION:

This area consists of 6,400 acres that were identified as a potential ACEC in the San Juan Management Framework Plan and are brought forward in Alternative A of the RMP. Resource values worthy of protection were delineated as naturalness, scenic values, and wildlife habitat. This area was also identified as an intensive inventory unit during the wilderness review process. It was dropped in the wilderness study phase based on the rationale that the unit had undergone development that impaired its naturalness and opportunities for solitude in the sense of wilderness.

Rattlesnake Canyon is located 11 air miles northwest of Navajo Lake. It is comprised of a large steep-sided canyon with a rocky valley floor. Oil and gas development and associated bladed roads, pipelines, storage facilities, and powerlines have directly impacted natural values of the canyon. Recognition of valid existing mineral rights will ensure the orderly development of minerals while preventing undue and unnecessary degradation of public lands.

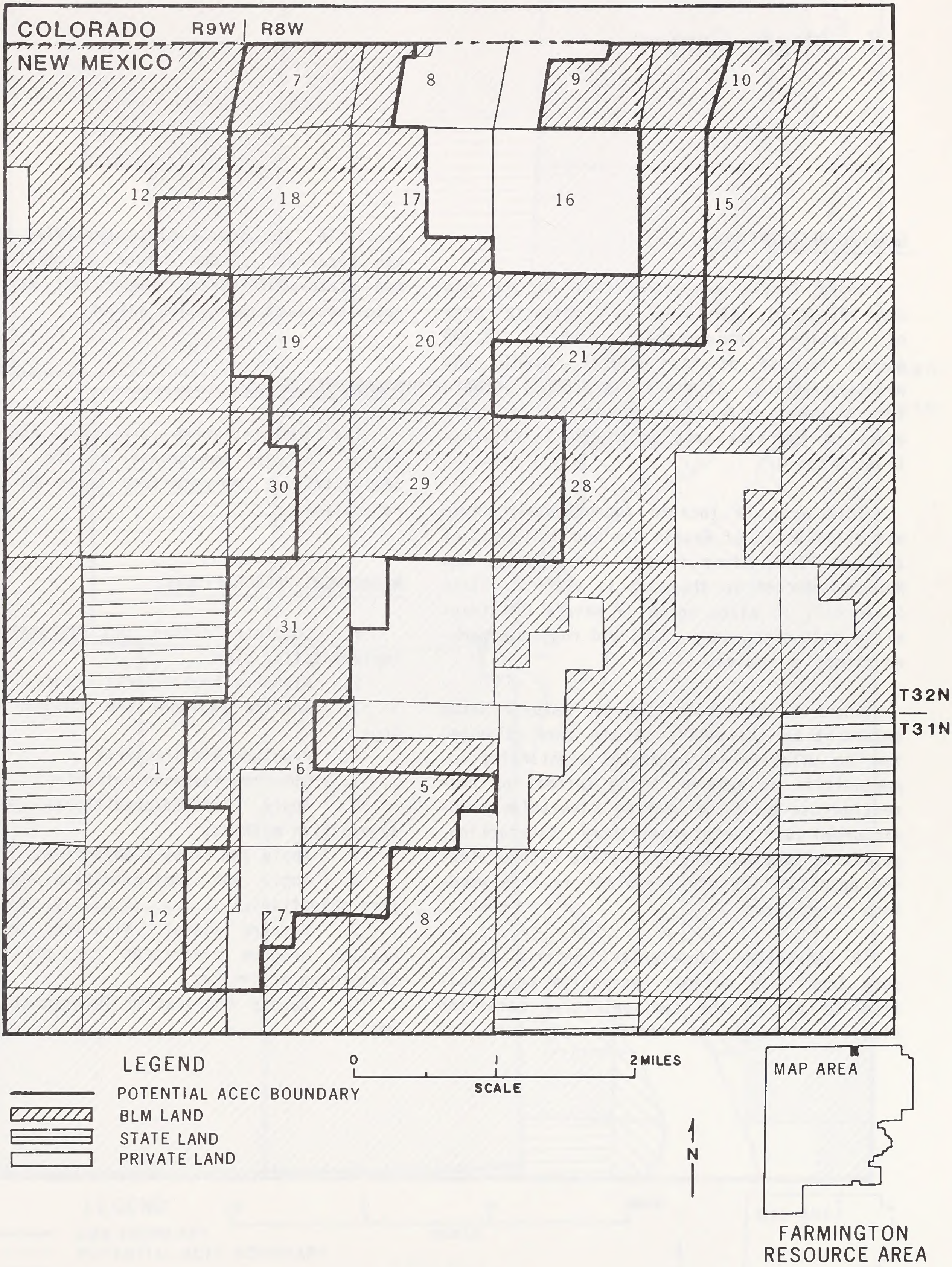
Vegetative cover is dominated by pinyon-juniper types, with some scattered ponderosa pine and upland sage flats. The canyon drainage provides an intermittent water source. The area supports some wintering mule deer. A Recreation Opportunity Spectrum Inventory has classified the area as containing semi-primitive motorized types of outdoor recreation opportunities that include activities such as backcountry camping, backpacking, rock climbing, trail riding, and big game hunting.

MANAGEMENT GOALS:

Goals for management of Rattlesnake Canyon include protection of natural, scenic, botanical, wildlife habitat and outdoor recreation values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw from future mineral entry.
3. Acquire non-BLM inholdings.
4. Close to fuelwood gathering.
5. Apply VRM Class II objectives.
6. Apply ROS semi-primitive non-motorized objectives.



MAP B-7
RATTLESNAKE CANYON

8. Negro Canyon

GENERAL DESCRIPTION:

Negro Canyon was identified in the San Juan MFP (USDI, BLM 1979c) as a potential Area of Critical Environmental Concern (3,800 acres) because of its natural, scenic and wildlife values. This area is brought forward into Alternative A of the RMP as well as 1,300 acres of the same area as an SMA in Alternatives B and D.

This area is located approximately seven air miles north of Navajo Dam and just west of the Los Pinos River in San Juan County, New Mexico. Access to the area is via N.M. State Route 511, 10 miles north of Navajo Dam traveling east along very rough and rugged unmarked primitive routes.

There is high potential for natural value enjoyment by the public as the area is noted for its wildlife and botanical sightseeing opportunities as well as being suited for recreation use by those wishing a relatively undisturbed backcounty experience. Backpacking, primitive camping, day hiking and nature viewing opportunities are prevalent in this woodland canyon area.

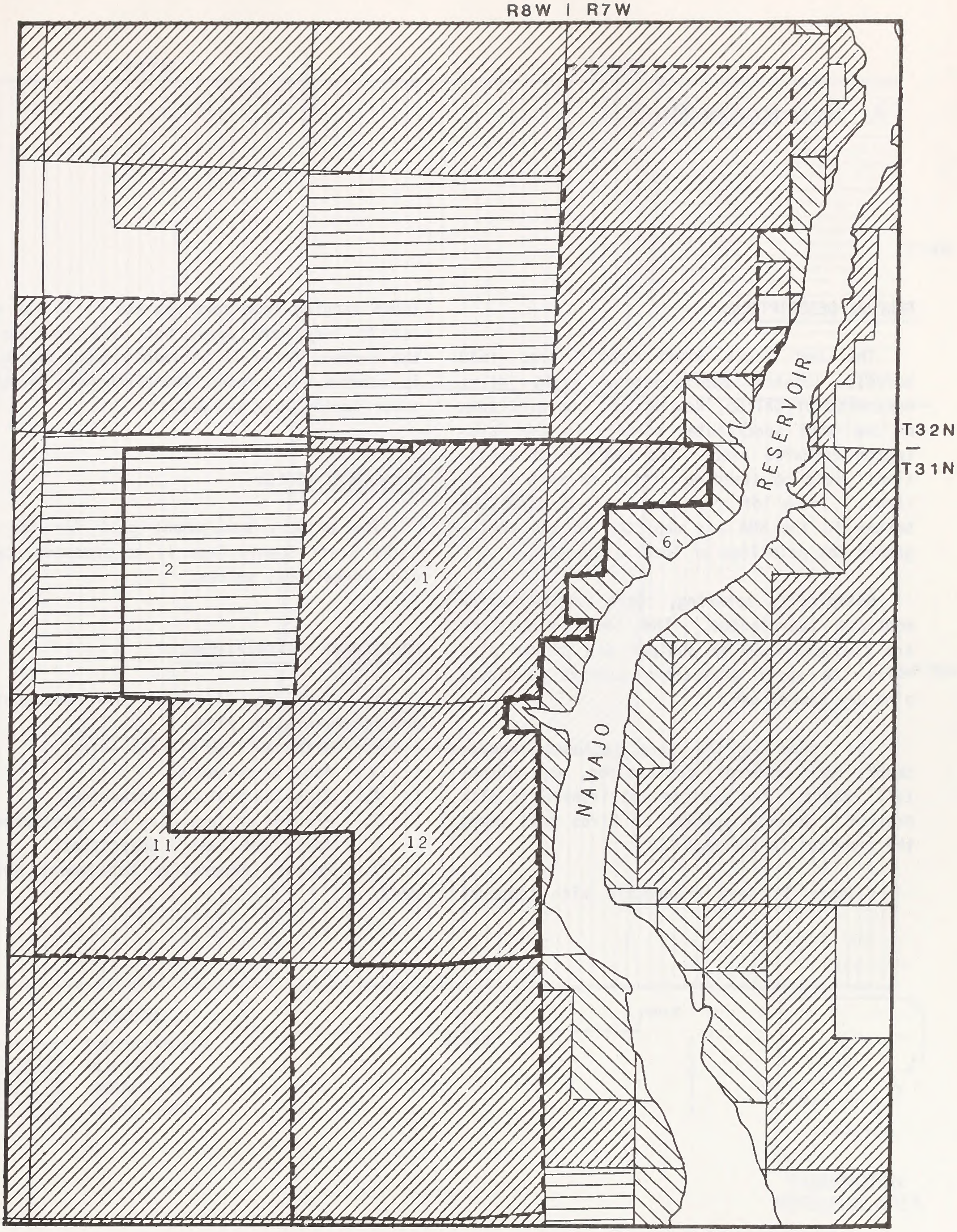
A Recreation Opportunity Spectrum Inventory identified outdoor recreation opportunities to be in the semi-primitive motorized class. Although no visitor use data are available, the area's close proximity to Navajo Reservoir, Simon Canyon Recreation Area and state-administered campgrounds may indicate important recreation values.

MANAGEMENT GOALS:

The administrative direction for Negro Canyon includes management of the area for semi-primitive non-motorized types of outdoor recreation.

MANAGEMENT PRESCRIPTIONS:

1. Complete "closed" ORV designation and implementation plan.
2. Withdraw from mineral entry.
3. Acquire easement and non-BLM inholdings.
4. Preclude ROW placement.
5. Close to fuelwood gathering.
6. Apply limited/conditional wildfire suppression methods.
7. Apply VRM Class I objectives.
8. Apply ROS semi-primitive non-motorized objectives.
9. Require Visual, Wildlife, and Recreation program clearances for all surface disturbing activities.
10. Pursue Cooperative Management Agreement.



LEGEND

▬ SMA BOUNDARY

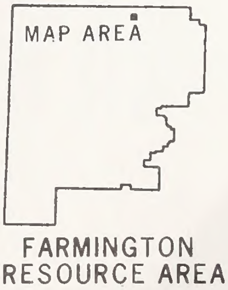
- - - - POTENTIAL ACEC BOUNDARY

▨ BLM LAND

▧ OTHER FEDERAL LAND

▤ STATE LAND

☐ PRIVATE LAND



MAP B-8

NEGRO CANYON

9. Red Rocks Bluff

GENERAL DESCRIPTION:

The Red Rocks Bluff Scenic Area (640 acres), located approximately eight miles northeast of Gallup, New Mexico, contains some of the most spectacular scenery in the Farmington Resource Area. The SMA's high elevations yield outstanding vistas in most directions. Views of the massive red sandstone buttes in the SMA are depicted in the photographs and paintings of local artists.

Botanically speaking, there are two major ecotypes represented. The lower elevations are characterized by juniper and pinyon pine while the upper elevations support ponderosa pine and Gambel oak.

The fauna in the area includes bobcat, skunk, rock squirrel, prairie dog, and cottontail rabbit. The prairie rattlesnake is also present. Several species of birds nest among the crevices in the rocks.

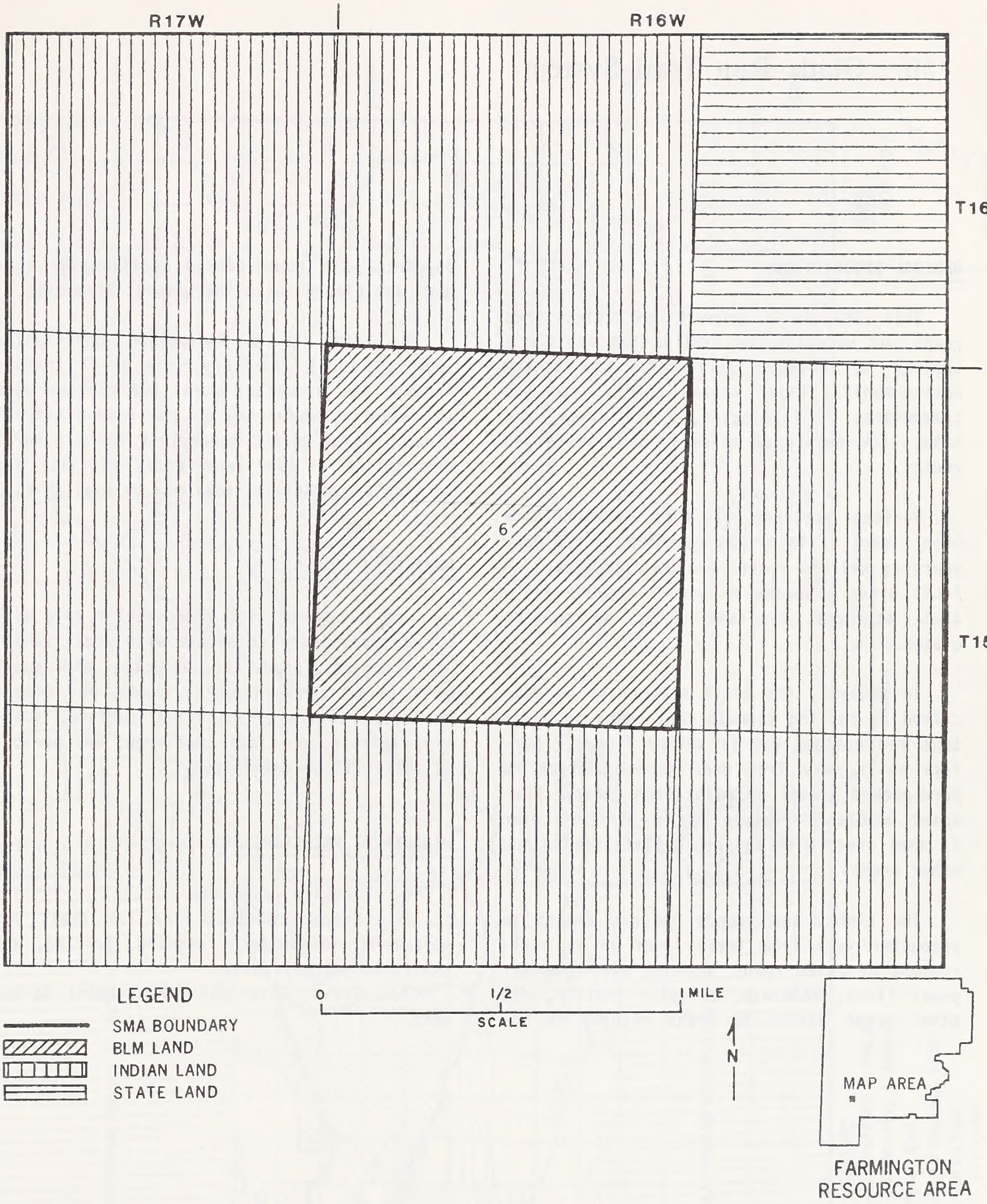
Climate is very changeable with temperatures ranging from zero degrees F. in the winter to very warm days, but cool evenings in the summer. Snowfall between October and April is common. Afternoon thundershowers normally occur during July and August.

MANAGEMENT GOALS:

The primary management goal for the Red Rocks Bluff Scenic Area is to preserve scenic and recreational values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw from mineral entry.
3. Acquire easement.
4. Close to fuelwood gathering.
5. Prepare project plan for development.
6. Apply VRM Class I objectives.
7. Pursue Cooperative Management Agreement.



MAP B-9

RED ROCKS BLUFF

10. Glade Run Trail System

GENERAL DESCRIPTION:

This SMA is a network of established roads and undesignated trails that contain a variety of outdoor recreation opportunity environments. Major access points from the communities of Farmington, Flora Vista, and Aztec link nearly 38 miles of well-developed routes.

Various portions of this network have been ridden by local ORV enthusiasts for many years as well as recent use by bicyclists. A local group sponsors an annual bicycle rally that attracts cyclists from surrounding states.

In general, the trail system can be described as rolling terrain that peaks on ridge tops and bottoms out in valley floors. Surface soils vary from deep sands to rock to hard-packed gravel or maintained roads. Forested woodlands feature pinyon-juniper cover in some areas with sagebrush flats dominating other areas.

The sights and sounds one can expect to encounter vary from those found in an environment of paved roads, housing developments, power lines, moderate vehicular traffic, and other urban noises to areas natural in appearance with human-caused modification subdued and blended with the natural landscape.

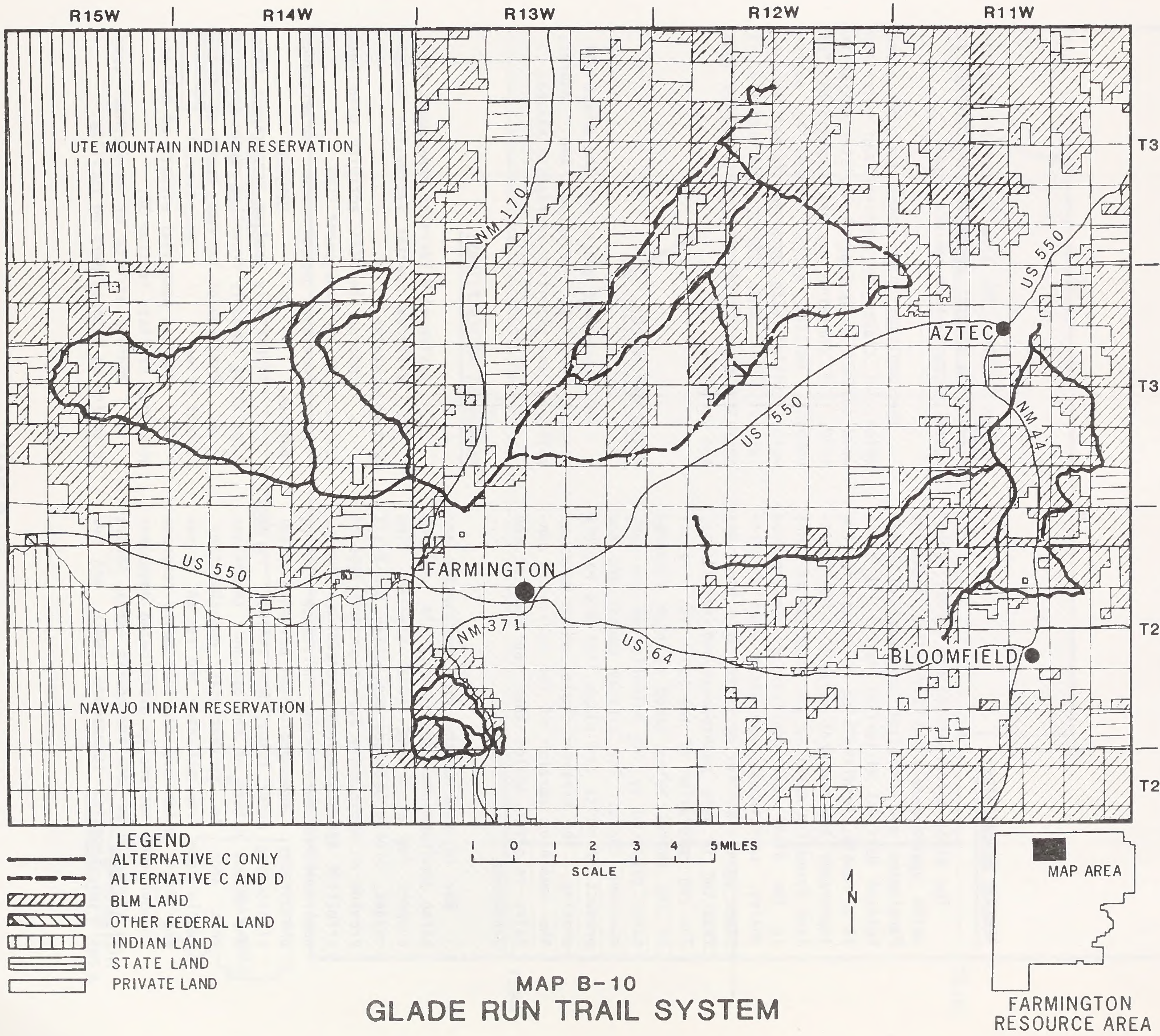
According to a Recreation Opportunity Spectrum (ROS) Inventory, the trail travels through the urban and rural ROS classes with the majority occurring in the roaded natural class. Refer to ROS Appendix F for a general description of the experience, activity and setting opportunities that may be available.

MANAGEMENT GOALS:

The Bureau of Land Management's role will be nonsupervisory in nature with trail administration designed for bicycles and small ORVs (e.g. three-wheelers, quads, and motorcycles). Diversity in trail surface, scenery, terrain, physical challenge, and personal risk will be maintained.

MANAGEMENT PRESCRIPTIONS

1. Acquire easements.
2. Prepare project plan for trail development, maintenance, signing, fencing, and environmental awareness.
3. Pursue Cooperative Management Agreement.



MAP B-10
GLADE RUN TRAIL SYSTEM

11. Bisti Wilderness

GENERAL DESCRIPTION:

The Bisti Wilderness (3,946 acres) is located approximately 30 air miles south of Farmington and 15 miles northwest of Chaco Culture National Historical Park. The Bisti is a remote, desolate area of upland rolling topography and badlands terrain. The Fruitland Formation makes up the majority of lands in the Bisti and consists of interbedded shales, sandstones, and coals with a siltstone base. Weathering of the sandstones has resulted in many mushroom-shaped formations. The red coloration of the hills is a result of the shales being baked by high temperatures produced by the oxidation of the surrounding coals. The billowy mounds are the product of silts and clays that are rapidly eroding. The Kirtland Shale, which makes up the remaining portion of the badlands, contains colorful shales that cap some of the landforms.

Due in part to the soil composition and harsh environmental conditions, the badlands support few plant and animal species. The rugged, broken badlands dominating the Bisti provide an opportunity for an unusual type of primitive and unconfined recreation. Unique opportunities for hiking, horseback riding, photography, and geological/paleontological sightseeing exist (USDI, BLM 1979b). It is the unique nature of the badlands themselves that adds to recreational opportunities. People come from all over the region to see the Bisti, which has received media coverage through such nationally distributed magazines as Living Wilderness (Nothdurft 1981), Sunset (1981), Frontier (Cheasebro 1980), and New Mexico (1985). The area is currently withdrawn from mineral entry and is "closed" to motorized/mechanized vehicle travel.

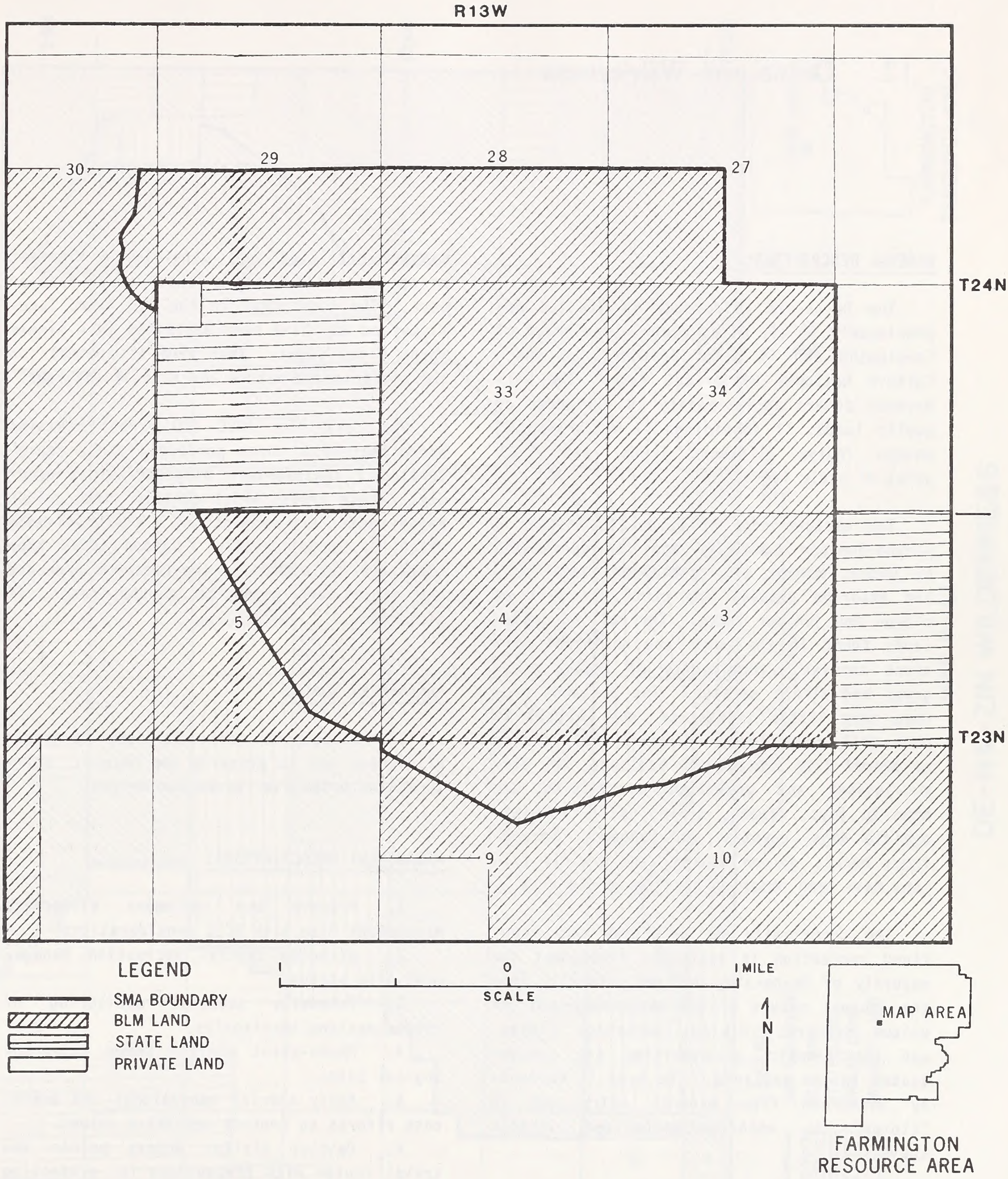
The Badlands ACEC contains 1,360 acres which was closed to vehicles and petrified wood collecting by Federal Register notice in 1978. It contains unusual topography "of compact, rolling hills, broken by narrow washes filled with mushroom formations and spires" (USDI, BLM, 1982a). Additionally, it contains abundant remains of petrified logs and fossils.

MANAGEMENT GOALS:

The management goals for the Bisti Wilderness are to preserve the natural, solitude, and primitive recreation values.

MANAGEMENT PRESCRIPTIONS:

1. Implement Wilderness Management Plan.
2. Withdraw Special Recreation Management Area status.
3. Incorporate ACEC activity plan into revisions of the Management Plan.
4. Increase patrol and surveillance routines.
5. Intensively monitor topographic features along commonly travelled routes.
6. Photo-point monitor known paleontological sites.
7. Address potential effects of BLM acquisition of State Section 32.
8. Address effects of Navajo/Hopi Land Selection on planned parking facility.



MAP B-11

BISTI WILDERNESS

12. De-na-zin Wilderness

GENERAL DESCRIPTION:

The De-na-zin Wilderness is located approximately 30 air miles south - southeast of Farmington and 16 miles northwest of Chaco Culture National Historical Park. The Wilderness covers approximately 19,700 acres of public lands, 11 inholdings (1,652 acres) of Navajo Indian allotment lands, and 2,520 acres of state lands.

The eastern edge of De-na-zin harbors a pinyon-juniper community and is represented by yucca, Mormon tea, snakeweed, sagebrush, and assorted grasses and cacti, as well as pinyon and juniper trees. The rolling grasslands found in the north and northeast portions consist predominantly of Indian ricegrass and alkali sacaton. The badlands produce very little vegetation, due in part to poor soil conditions. Although few species of animal life inhabit the badlands, the pinyon-juniper and grassland communities are home to jays, ravens, scaled quail, rabbits, prairie dogs, coyotes, and badgers. Ferruginous hawks, golden eagles, and prairie falcons have been observed nesting in the area.

The opportunity for primitive and unconfined recreation is available throughout the majority of De-na-zin, derived primarily from the unusual nature of the topography and the unique scenery. Hiking, horseback riding, and photographic opportunities are concentrated in the badlands. The area is currently withdrawn from mineral entry and is "closed" to motorized/mechanized vehicle travel.

The Log Jam ACEC (320 acres) contains massive petrified logs attaining a diameter of up to six feet and a length of 75 feet or more. The logs occur in the Ojo Alamo Sandstone and may have been deposited in a single large flood event. This area is unusual for the concentrated nature and size of the logs.

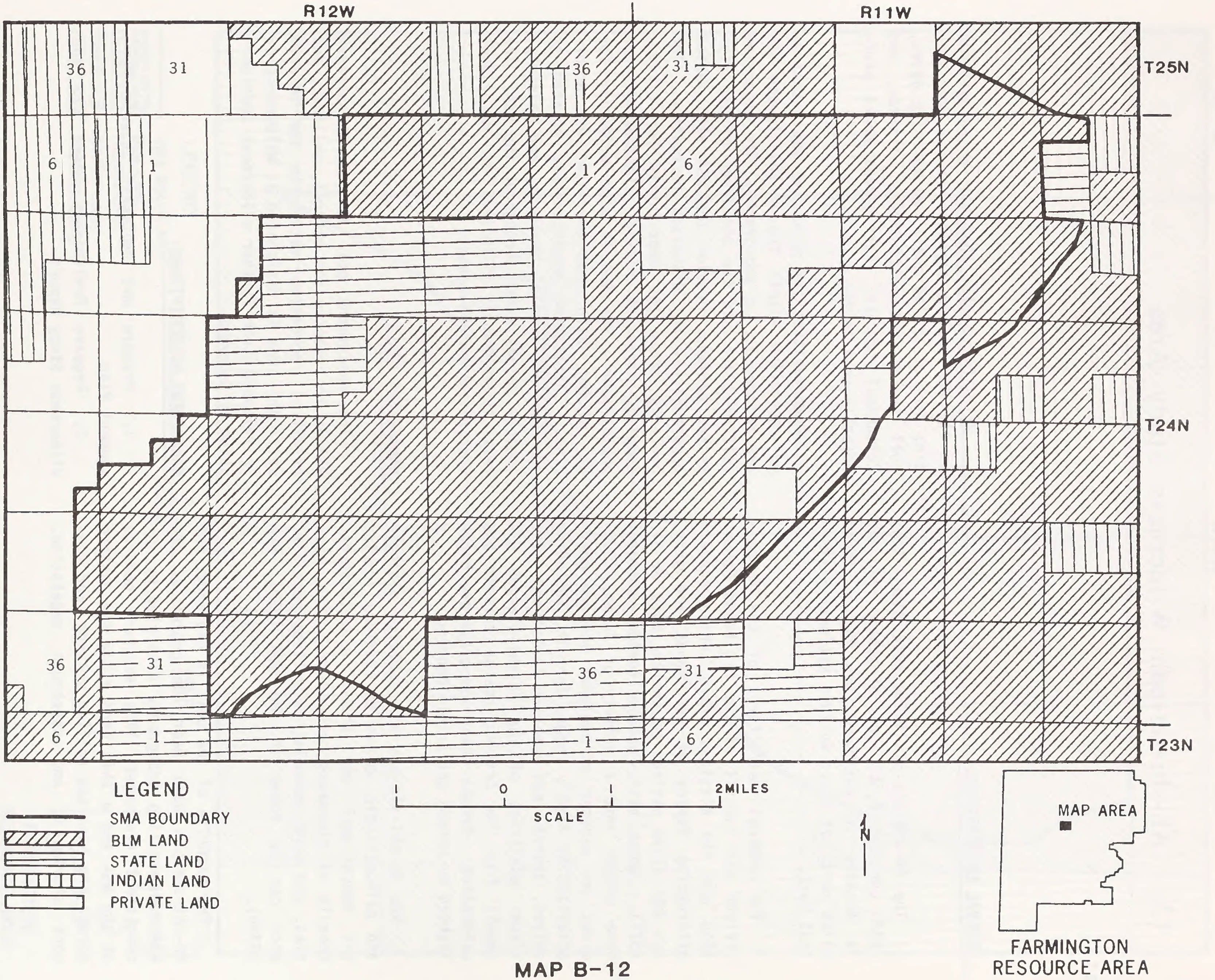
The Lost Pine ACEC (80 acres) contains approximately a dozen ponderosa pines representing a southwestern biogeographical anomaly. These trees, which contain three golden eagle nests, are remnants of a cooler climate which no longer exists. Golden eagle tree nests are not common in the Resource Area and the eagles are prone to abandon nests, if disturbed.

MANAGEMENT GOALS:

The management goals for the De-na-zin Wilderness are to preserve the natural, solitude, and primitive recreation values.

MANAGEMENT PRESCRIPTIONS:

1. Prepare and implement Wilderness Management Plan with ACEC considerations.
2. Withdraw Special Recreation Management Area status.
3. Intensive seasonal monitoring of raptor nesting territories.
4. Photo-point monitor known paleontological sites.
5. Apply special educational and awareness efforts to protect sensitive values.
6. Develop visitor access points and travel routes with precautions for protecting sensitive values.



MAP B-12

DE-NA-ZIN WILDERNESS

13. Ah-shi-sle-pah Wilderness Study Area

GENERAL DESCRIPTION:

The Ah-shi-sle-pah Wilderness Study Area (WSA) contains 6,563 acres of public land and is located in northwest New Mexico three miles north of Chaco Culture National Historical Park.

The geologic structures of the Ah-shi-sle-pah WSA consist of the Fruitland Formation and the Kirtland Shale, which contain alternating layers of sandstones and gray, tan and olive variegated shales (Kues et al. 1977). These soft, unconsolidated sediments have eroded into a variety of forms. Outcrops are exposed as badlands and are characterized by highly rugged terrain, including spires, towers, and mushroom formations. The visual qualities of the Ah-shi-sle-pah WSA result from the broken, coarse terrain and coloration. Browns, tans and grays are highlighted by maroon and purple banding.

The Ah-shi-sle-pah WSA contains geologic and paleontologic values that afford intrinsic educational and scenic opportunities. Fossils of dinosaurs, crocodiles, fish, turtles, and early mammals, as well as petrified wood can be found in the WSA (USDI, BLM 1979b).

The majority of the unit is badlands, but Ah-shi-sle-pah Wash near the center of the WSA adds rolling topography dissected by intermittent drainages. The southern portion of the WSA and a thin band along the eastern border are open and rolling uplands, and support shortgrass and sagebrush vegetation.

Wildlife species that may be encountered in the WSA include coyotes, upland game species such as scaled quail and mourning doves, bull snakes and rattlesnakes, lizards, and cottontail rabbits. Ferruginous hawks periodically nest in the area.

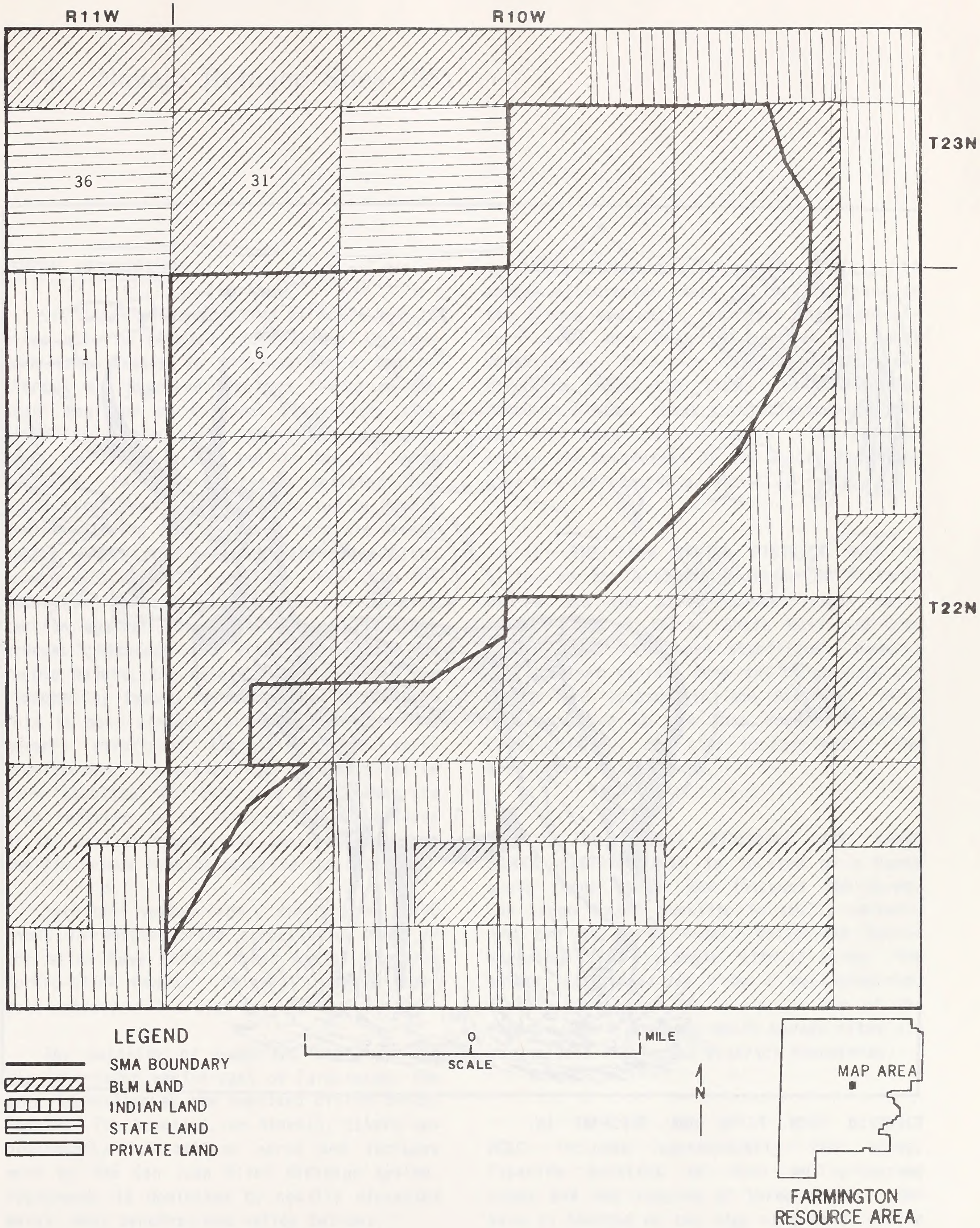
Opportunities for primitive and unconfined recreation within the Ah-shi-sle-pah WSA are related to its topography. The expansive rolling hills and the intricacy of the dissected badlands provide the WSA with varied opportunities for dispersed recreation. The badlands offer the opportunity for hiking, camping, horseback riding, sightseeing, and photography. The WSA is used primarily for day hiking, with some overnight use occurring. Sightseeing opportunities related to the inherent scenic, geologic, and paleontological values exist throughout the WSA. The area is currently "limited" to motorized/mechanized vehicle travel.

MANAGEMENT GOALS:

The management goal for Ah-shi-sle-pah WSA is to preserve the natural, solitude, and primitive recreation values in the interim until the area is designated as Wilderness or is released from further wilderness consideration by Congress.

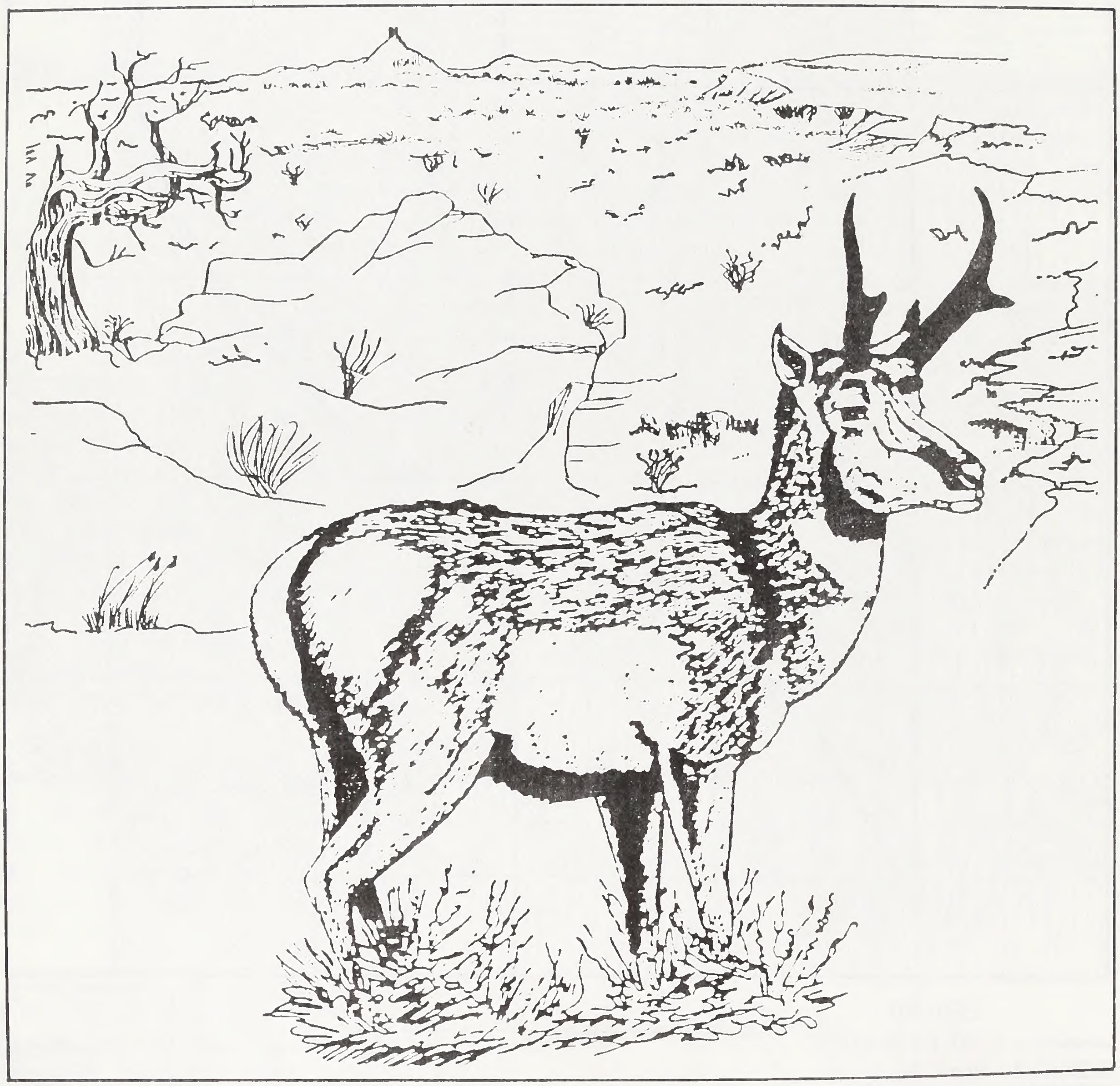
MANAGEMENT PRESCRIPTIONS:

1. Prepare and implement Interim Management Plan.
2. Prepare Preliminary Final EIS and Wilderness Study Report.



MAP B-13

AH-SHI-SLE-PAH WILDERNESS STUDY AREA



14. Navajo Refugee Sites (25)

GENERAL DESCRIPTION:

Six sites are identified as ACECs and 19 sites will be managed under Special Management Area status in Alternatives B and D. All but the Shephard Site are listed on the State Register of Cultural Properties. The sites are defensively positioned on mesa tops, on cliff faces, and on top of large boulders. Early investigators believed that these sites were built and occupied by Pueblo Indians fleeing the Spanish in the Rio Grande Valley. Tree-ring evidence dating the sites to the mid-1700s supports the idea that the sites were constructed by the Navajo for protection against attacks by Ute and Comanche groups. Although the sites post-dated the Pueblo Revolt, the Navajo were apparently influenced by Pueblo culture during this time. This is most strongly evidenced by the stone masonry structures exhibiting pueblo-style architecture, resulting in the descriptive term "pueblito" for this site type. They are also referred to as "Refugee" sites because of the earlier supposition that refugees from the Rio Grande Pueblos occupied the sites.

Site size varies from a single room to 40 rooms in multi-storied structures. Many of the sites have intact roofs and/or standing forked-stick hogans. Material remains indicate contact with a wide geographical area.

The majority of pueblitos are found in the Gobernador region east of Farmington, the area identified as the homeland of the Navajo People. The homeland, or Dinetah, covers approximately 1.5 million acres and includes much of the San Juan River drainage system. Topography is dominated by heavily dissected mesas, mesa benches, and valley bottoms.

(a) **THE SHEPHARD SITE:** The FRA's southernmost pueblito has four rooms in a two-story structure with intact roofs. The number of corncobs found in the trash and in the floors and walls indicates that agriculture was a very important part of the local subsistence. Tree ring samples indicate construction around A.D. 1739. The site is located on a bench above a relatively wide valley with deep alluvial soils. The site is within the boundaries of the Chacra Mesa Complex and includes 40 acres.

(b) **THE CROW CANYON DISTRICT ACEC** is listed on the National Register of Historic Places and the site includes eight major ruins. Two of these, Shaft Ruin and Crow Canyon Ruin, have been stabilized. Several rock shelter storage bins and large rock art panels are located in the District. Pithouses dating to the Rosa Phase occupation (A.D. 700-900) are also located here. The area covers 3,580 acres.

(c) **THE HOODED FIREPLACE AND LARGO SCHOOL DISTRICT ACEC** is located on a bench above Largo Canyon and includes 320 acres. The Largo School pueblito is small, containing two or three rooms, while the Hooded Fireplace Site is larger, with 11 rooms. The latter site name is from a well-preserved fireplace found in the corner of one of the rooms. There are many small Navajo sites also included within the District boundaries.

(d) **TAPACITO AND SPLIT ROCK DISTRICT ACEC** includes approximately 240 acres. Tapacito consists of four well-preserved rooms and the remains of three others. The site is located on the edge of a bench on the eastern side of Largo Canyon. The site was built in the A.D. 1690s making it one of the earliest recorded refugee sites. Split Rock is located less than one-half mile north of

Tapacito on top of a large cracked boulder. There are four first-story rooms and there may have been a second story at one time.

(e) **FRANCES RUIN ACEC** is one of the largest known refugee sites with 40 rooms, a plaza, and a three-story tower. It was excavated in 1915 by Earl Morris with later investigations reported through the 1940s and into the 1970s. It is listed on the National Register of Historic Places. The ACEC covers 40 acres.

(f) **CHRISTMAS TREE RUIN ACEC** (40 acres) differs from most Navajo Refugee sites in that it is a single large room in a rock shelter, rather than a free-standing pueblo.

(g) **SIMON RUIN:** This site (40 acres) is located within the boundaries of the Simon Canyon Recreation Area and ACEC. It is the northwesternmost recorded Gobernador Phase pueblito and consists of a one-room structure built on top of a large boulder.

(h) **SAN RAFAEL CANYON ACEC:** San Rafael Canyon is the largest (5,460 acres) of the Navajo Refugee ACECs. It contains three sites listed on the State Register of Cultural Properties: Old Fort, Kin Naa Daa, and Three Corn Ruins. Old Fort Ruin was built defensively with a high wall on two sides and a steep mesa edge protecting the remainder of the site. Forked stick hogans and masonry structures built in the pueblito style were contained inside the walls. Three Corn Ruin is a multiple room pueblito built on top of a large sandstone outcrop rising above a mesa finger. Kin Naa Daa (Maize House) is a small pueblo on a talus boulder with hand and footholds leading from the boulder to the pueblito entrances. Numerous other early Navajo sites have also been recorded on the mesa and mesa benches above the canyon.

(i) **ROMINE CANYON RUIN** (40 acres) is on a sandstone crag that protrudes west from a bench of a finger of Frances Mesa. The site consists of a single-story six-room pueblito with an entry way or courtyard, midden areas, and a defensive wall that isolates the pueblito from the rest of the bench.

(j) **PRIETA MESA SITE** (40 acres) is on the point of a bench of Prieta Mesa which drops sharply about 100 feet to the broad bench below. The site has an extensive view of sage-covered benches on the east side of Largo Canyon. The site consists of a masonry-walled crag with a probable entryway. Three or four forked-stick or cribbed log hogans are enclosed by the wall. The entry appears to consist of a passage under a large horizontal timber into a narrow masonry room or corridor at the east end of the crag. The defensive wall differs from others because it has a number of large upright timbers set among the wall stones. A fourth hogan or sweatlodge lies on a small bench just northwest of the crag.

(k) **DELGADITO PUEBLITO** (40 acres) is built on an isolated boulder in a south-facing cul-de-sac of Delgadito Canyon. A three-room pueblito is built on a boulder top and a two-room masonry unit is located at the base of the boulder. The lower rooms probably provided access to the upper rooms. A series of hand and footholds are also carved in the boulder above the lower rooms.

(l) **CAGLE'S SITE** (40 acres) is in a small corner of a bench of Delgadita Mesa and sits on an isolated boulder. The pueblito contains either two rooms or one room with an entry passage.

(m) **ADAMS CANYON SITE** (40 acres) is located on the edge of the cliff forming the west side of Adams Canyon. The site commands a view down Adams Canyon and across Carrizo Canyon to Gomez Point Ruin. The site in-

14. (Continued)

cludes a three-room pueblito, a forked-stick hogan, a stone-based hogan, a burned rock pile, and a trash deposit. Anasazi rock art panels are located on the cliff wall below the site.

(n) **CASA MESA DIABLO** (40 acres) is on a bench near the head of one of the branches of Encierro Canyon. The site consists of a pueblito, two possible hogans, a mound of oxidized sandstone, and various artifact scatters and midden. Four rooms are built on the edge of the bench and one room is on an outcrop that is nearly two meters higher than the rest of the bench. The roof of a lower room was probably the means of access.

(o) **RINCON ROCKSHELTER** (40 acres) overlooks the head of a small tributary to Carrizo Canyon. The site is located on the edge of the mesa, in a rockshelter half way down the cliff, and on the ledge below the shelter. The site consists of a walled rockshelter, masonry rooms on the cliff edge above, and midden debris on the bench below. The interior is heavily covered with mud mortar bearing many fingerprints. On the edge of the cliff are low walls outlining two rooms, one on either side of a crevice that may have been part of an entrance to the rockshelter.

(p) **HILL ROAD RUIN** is at the head of a small sandstone draw running north into Carrizo Canyon. The site is on a small boulder outcrop and consists of a pueblito, a possible hogan or windbreak, and surrounding trash deposits. The site covers 40 acres.

(q) **GOMEZ POINT SITE** (40 acres) is on a narrow promontory projecting east from the top of the mesa toward the junction of Gomez and Carrizo Canyons. The locations of the Adams Canyon site and the Gomez Canyon pueblito can be seen, but neither site can be distinguished with the naked eye. The site consists of three noncontiguous masonry structures and several midden areas enclosed by a defensive wall. The structures occupy the west end, the middle, and the eastern end of the point.

(r) **GOMEZ CANYON RUIN** (40 acres) is situated on a small sandstone point protruding from a bench of the mesa on the east side of Gomez Canyon. The site includes a pueblito, four forked-stick hogans, at least two midden areas, two piles of burned sandstone, and a few slab features.

(s) **ADOLFO CANYON SITE** (40 acres) is on a rock outcrop overlooking Adolfo Canyon from the west. Gould Pass Ruin, Gomez Canyon Site, and a large section of Adolfo Canyon can be seen from the site. The pueblito has a three-room, single-story pueblito, an extensive midden area, and six forked-stick hogans on the crest of the ridge. Two more hogans, two ramadas, and a pile of burned sandstone were also recorded on the bench below. Portions of the pueblito, hogans, and trash have been excavated.

(t) **UNREACHABLE ROCKSHELTER** consists of a walled rockshelter, a series of masonry wall remnants in alcoves and on ledges, artifact concentrations, and 13 forked-stick hogans on the mesa above. The site covers 60 acres and occupies a series of alcoves on the north side of Smith Canyon, a right bank tributary of Largo Canyon, and the mesa top above it.

(u) **COMPRESSOR STATION RUIN** (40 acres) sits on the second broad bench on the south side of Largo Canyon. The site consists of a pueblito on a free-standing sandstone outcrop, a burned rock pile, a slab-lined bin and forked-stick hogan, and an alcove containing a seep or spring. The pueblito has four ground floor rooms with evidence of a second story.

(v) **THE FOOTHOLD AND OVERLOOK RUINS DISTRICT** is on the east side of Palluche Canyon and includes 120 acres. Foothold Ruin sits on an isolated sandstone monolith with additional rooms at the base. Access up the monolith is by a set of footholds in the rockface. Roof beams and remnants of a hooded fireplace are found on the pueblito. The Overlook Site looks down on Foothold Ruin. The site includes a pueblito, forked-stick hogans, a stone-based hogan, and other external features.

(w) **THE POINTED BUTTE RUIN** covers 40 acres and occupies the top of a steep-sided isolated butte and the surrounding area. The butte is on the east side of Cibola Canyon and commands a view of the surrounding mesas and canyons for several miles. It also has a view of Gobernador Knob on the skyline. The site consists of the remains of about three rooms on the butte, three forked hogans south of it, and substantial areas of trash surrounding the pueblito and hogans. The most intact pueblito walls are segments that extend downward into crevices in the butte. Access to the butte was apparently by means of a masonry entryway and natural rock passage on the east side of the butte.

(x) **THE RINCON LARGO DISTRICT** includes two pueblitos and covers 180 acres. The Tower of The Standing God is on a bench on the north side of the mesa dividing Johnson Canyon from Rincon Largo. Masonry rooms are built next to three boulders and a tower may have been built on top of one of the boulders. A Ye'ii figure has been incised into one of the rocks. Van Valkenburgh (1947) reports that the site was the homestead of a Navajo chief who was rewarded by the Spanish in 1785 for his aid against the Apache. However, Brugge (1972) associates the chief with a site much farther south. Rincon Largo Ruin and a third pueblito are visible from this site. Rincon Largo Ruin sits on a sandstone crag and two stone circles are located downslope to the northeast.

(y) **KIN YAZHI (LITTLE HOUSE)** sits on the eastern spur of a narrow mesa that separates Rockhouse Canyon from Rincon Largo. It commands a view up Largo Canyon for about six miles, down Largo for about a mile, and up Rincon Largo for about two miles. A pueblito (Canyon View Ruin) across the mouth of Rincon Largo is clearly visible. The structure has a north-facing doorway narrowed by a masonry pillar and contains evidence of a corner fireplace. The site includes 40 acres.

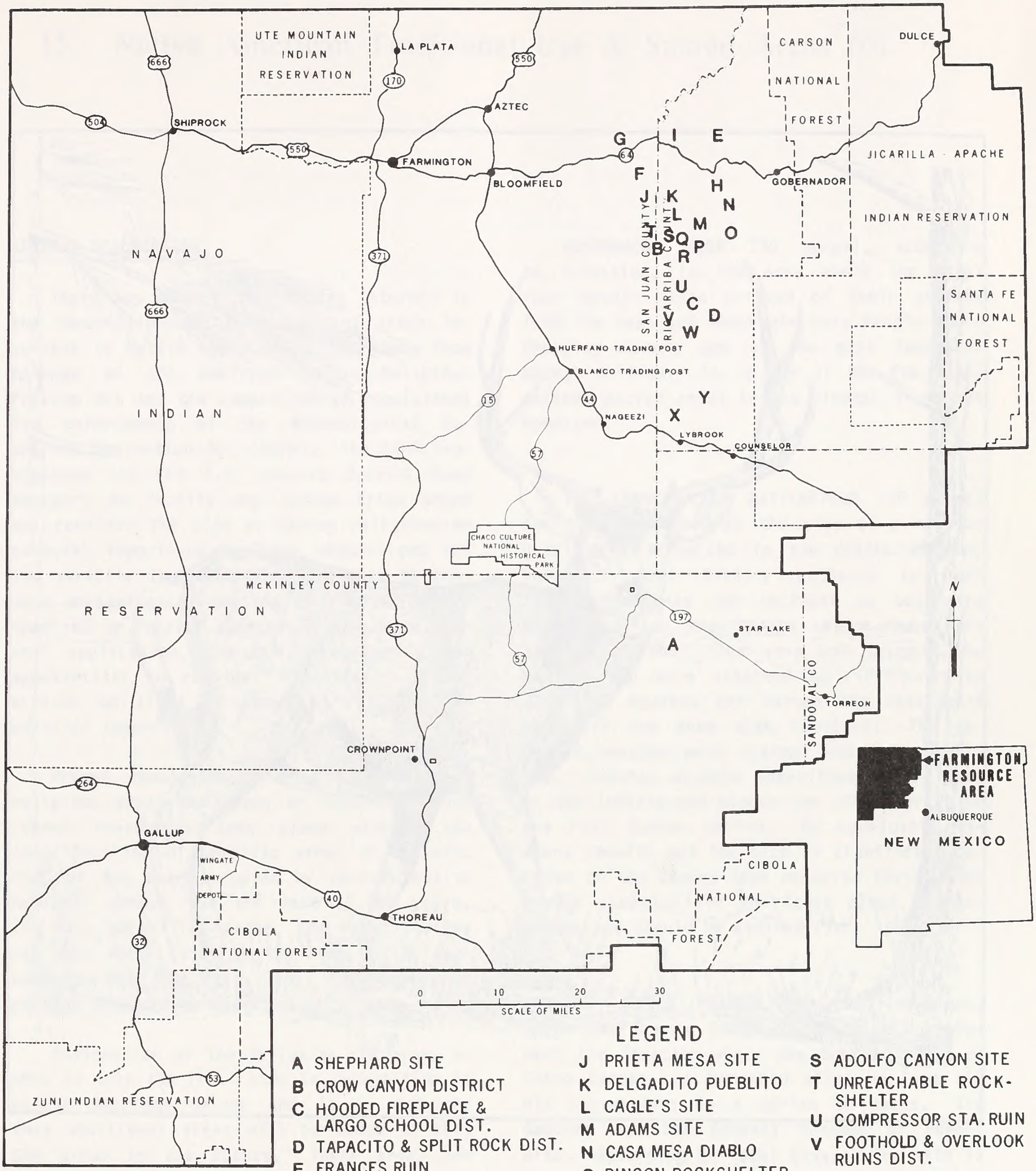
MANAGEMENT GOALS:

The management goal for the Navajo Refugee sites will be to preserve cultural and recreational values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designations and implementation plans.
2. No surface occupancy.
3. Acquire easements.
4. Preclude ROW placement.
5. Close to fuelwood gathering.
6. Document site conditions.
7. Prepare recommendations for stabilization maintenance.

FARMINGTON RESOURCE AREA

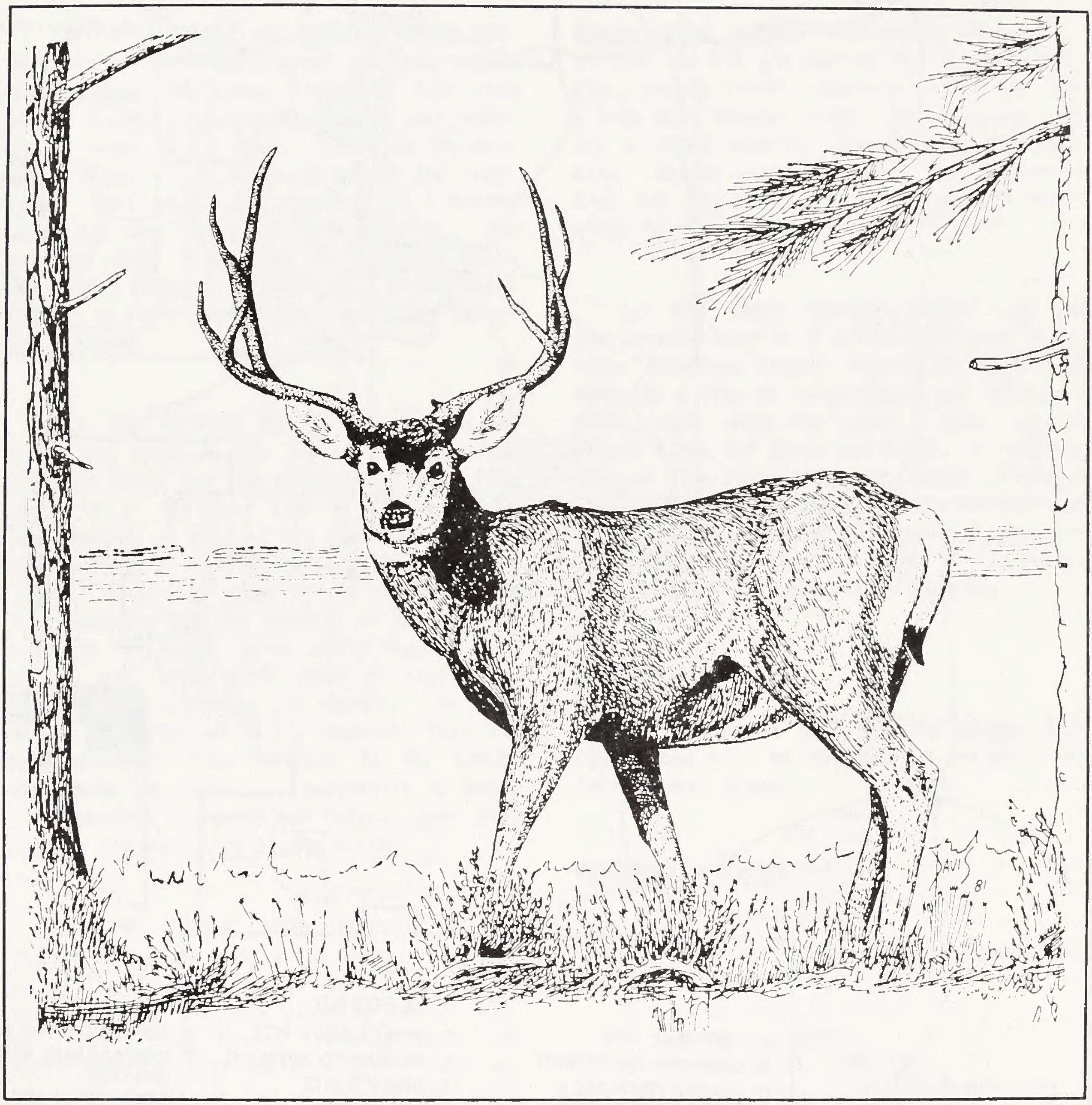


LEGEND

A SHEPHARD SITE
B CROW CANYON DISTRICT
C HOODED FIREPLACE & LARGO SCHOOL DIST.
D TAPACITO & SPLIT ROCK DIST.
E FRANCES RUIN
F CHRISTMAS TREE RUIN
G SIMON RUIN
H SAN RAFAEL CANYON
I ROMINE CANYON RUIN
J PRIETA MESA SITE
K DELGADITO PUEBLITO
L CAGLE'S SITE
M ADAMS SITE
N CASA MESA DIABLO
O RINCON ROCKSHELTER
P HILL ROAD RUIN
Q GOMEZ POINT SITE
R GOMEZ CANYON RUIN
S ADOLFO CANYON SITE
T UNREACHABLE ROCK-SHELTER
U COMPRESSOR STA. RUIN
V FOOTHOLD & OVERLOOK RUINS DIST.
W POINTED BUTTE RUIN
X RINCON LARGO DISTRICT
Y KIN YAZHI (LITTLE HOUSE)

MAP B-14

NAVAJO REFUGEE SITES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15. Native American Traditional Use & Sacred Areas (6)

GENERAL DESCRIPTION:

There has been an increasing interest in the recognition and protection of areas important to Native Americans. This stems from passage of the American Indian Religious Freedom Act and the completion of regulations for enforcement of the Archeological Resources Protection Act (ARPA). The ARPA regulations (43 CFR 7.7) require federal land managers to "notify any Indian tribe which may consider the site as having religious or cultural importance." These regulations refer strictly to requests for permits to conduct archeological testing or excavation authorized by federal agencies. In a more general application, the BLM recognizes a responsibility to consider the effects of its actions on sites or areas of religious or cultural importance.

Proper consideration of Native American religious areas and areas of traditional use cannot reasonably take place without the identification of specific areas of concern. The FRA has been occupied by various Native American groups for the last 10,000 years. The Ute, Jicarilla Apache, and Navajo tribes all have recent ties to the area, while connections with the Zuni, Hopi, and Rio Grande pueblos are more ephemeral.

Designation of the following six areas as SMAs is only the first step in recognition of Native American values and it is expected that additional areas will be added to this SMA group in the future. These areas are only specific places of concern at this time. Mesa Quartado appears in RMP Alternative A, Crane Petroglyphs in Alternative B, Tanner Lake Battlefield in Alternatives B and D, and Gobernador Knob, Huerfano Mesa, and Salt Point ACEC in Alternatives A, B, and D.

GOBERNADOR KNOB (40 acres), according to tradition, is the area where the first four Navajo Clans arrived on their journey from the west and where the Holy People found Changing Woman, one of the most important Navajo deities. It is one of the few well-defined sacred areas in the Dinetah or Navajo Homeland.

THE TANNER LAKE BATTLEFIELD (80 acres) has been described as the site of a raid or battle that resulted in the deaths of many Navajos. Oral history gathered by York (1984) documents the incident as occurring sometime after the Navajo return from Fort Sumner in 1868. The area was occupied by Navajos who were attacked by rifle-carrying Jicarilla Apaches who burned the settlement and left the area with captives. The deceased Navajos were scalped and left unburied. Another account identifies the raiders as Ute Indians and places the attack prior to the Fort Sumner period. No surficial evidence remains but the site is significant because of the deaths that occurred there. The Navajo also believe that this place is dangerous and should be avoided (York 1984).

THE CRANE PETROGLYPHS (Dehl-na-zineh, Where the Cranes Stand Up, 10 acres) represent the location where the Great Gambler of Chaco Canyon was banished after he lost all his possessions in a series of games. The Gambler was the Anasazi headman of Pueblo Alto. According to local Navajos the site is a sacred area where medicine men make offerings, perhaps for rain rituals and/or the Flintway ceremony. Ideas about the origin of the petroglyphs include carving by Ute Indians, by the Anasazi, or by the Navajo Holy People (York 1984).

15. (Continued)

SALT POINT ACEC (Ashiihnaa'ah, Salt Going Down Point, 640 acres) is traditionally associated with the Navajo Salt Woman. Other than this, little is known about the area. It is identified by Van Valkenburgh (1974) as a Navajo sacred place.

MESA QUARTADO (5,270 acres), also referred to as Dzil nitaas or Big Mountain, is located near Largo Canyon and was identified by Van Valkenburgh (1974) as a place associated with Navajo clan tradition. At one time it was used as a plant and herbal gathering area.

HUERFANO MESA (3,670 acres) is a large isolated mesa which dominates the landscape south of the San Juan River and can be seen from the Chuska Mountains 50 miles to the west. It is a sacred mountain in Navajo tradition. It is mentioned in the Blessingway ceremony and was the scene of first girl's first adolescence ceremony for Changing Woman and the point of Changing Woman's departure for the Western Sea. It is used for gathering plant and herbal medicines (Van Valkenburgh 1974).

MANAGEMENT GOALS:

The management goal for this category of sites is protection of cultural values.

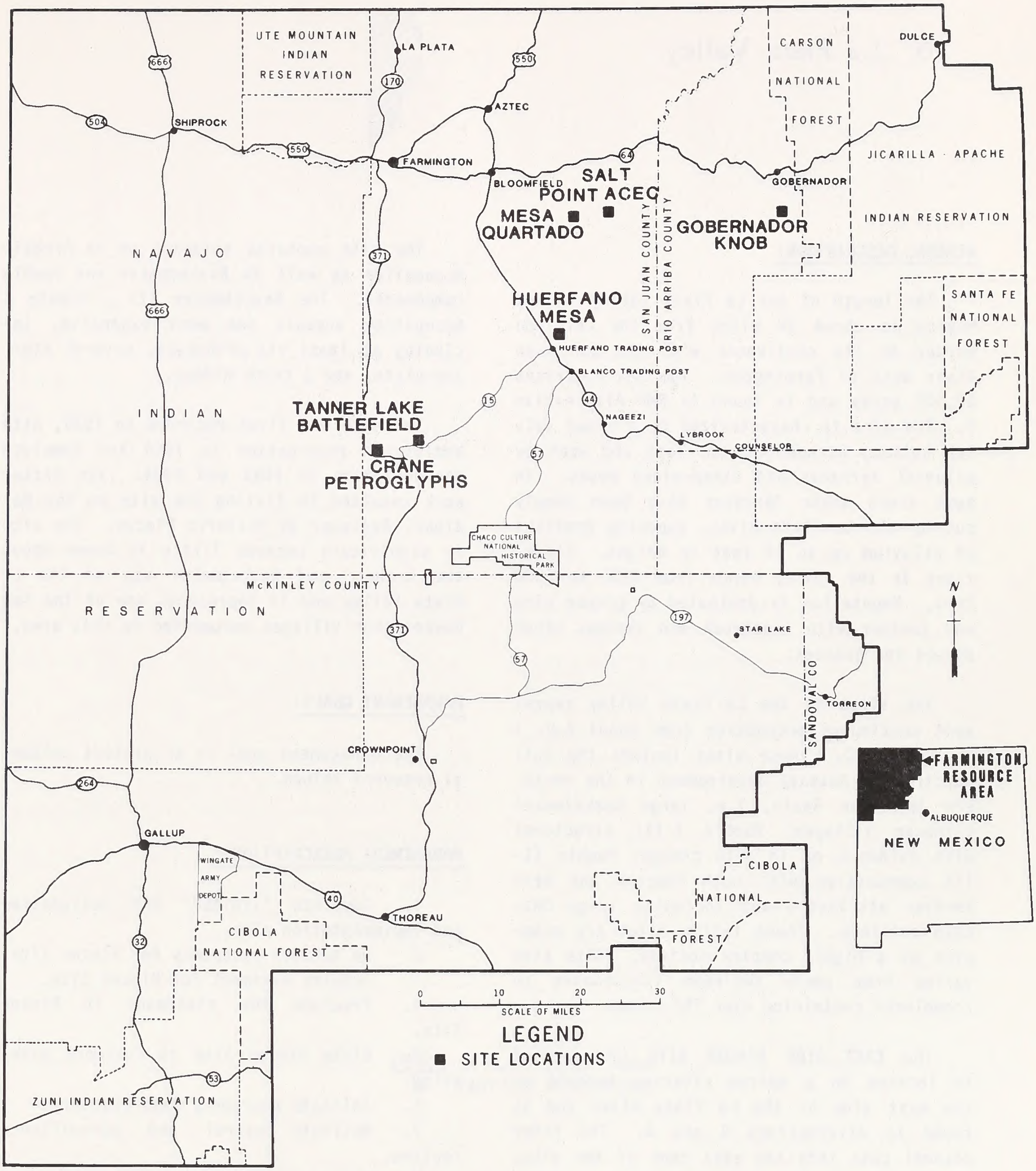
MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designations and implementation plans.
2. Withdraw from locatable and saleable minerals.
3. No surface occupancy.
4. Preclude ROW placement.
5. Develop programmatic MOU with Native American groups to define consultation procedure.
6. Conduct ethnographic and literature search to develop a data base identifying specific areas of concern for management as SMAs.

NOTE:

It is expected that additional areas of importance to Native Americans will be identified throughout the Resource Area as a result of objectives 5 & 6 above.

FARMINGTON RESOURCE AREA



MAP B-15

NATIVE AMERICAN TRADITIONAL USE AND SACRED AREAS

16. La Plata Valley

GENERAL DESCRIPTION:

The length of the La Plata Valley in New Mexico is about 20 miles from the Colorado border to its confluence with the San Juan River west of Farmington. The SMA comprises 50,500 acres and is found in RMP Alternative B. The area is characterized by a broad valley bottom, bounded on the east and west by alluvial terraces and steep-sided mesas. In some areas these terraces have been deeply cut by the La Plata River, exposing profiles of alluvium up to 15 feet in height. Elevations in the valley range from 5200 to 6000 feet. Vegetation is dominated by pinyon pine and juniper with sagebrush and various other shrubs and grasses.

The sites in the La Plata Valley represent continuous occupation from about A.D. 1 to A.D. 1300. These sites include the full spectrum of Anasazi development in the northern San Juan Basin, i.e. large Basketmaker pithouse villages; Pueblo I-III structures with evidence of in situ change; Pueblo II-III communities with both Chacoan and Mesa Verdian attributes and including large Chacoan outliers. These latter sites are examples of a highly complex society. Site size varies from oneor two-room fieldhouses to roomblocks containing over 250 rooms.

The **EAST SIDE RINCON SITE** (100 acres) is located on a narrow riverine terrace on the east side of the La Plata River and is found in Alternatives B and D. The river channel cuts into the east bank of the site, creating a steep-banked terrace edge which rises 45 to 100 meters above the floodplain. A deeply entrenched arroyo also bisects portions of the site. Cultural features are exposed in the banks of the arroyo and in the east bank of the La Plata River.

The site contains evidence of an Archaic occupation as well as Basketmaker and Pueblo components. The Basketmaker III - Pueblo I occupation appears the most expansive, including at least six pithouses, several storage cists, and a trash midden.

The site was first recorded in 1935, with additional recordation in 1964 and complete documentation in 1983 and 1984. The latter work resulted in listing the site on the National Register of Historic Places. The site is significant because little is known about the Archaic and Basketmaker use of the La Plata Valley and it represents one of the few Basketmaker villages documented in this area.

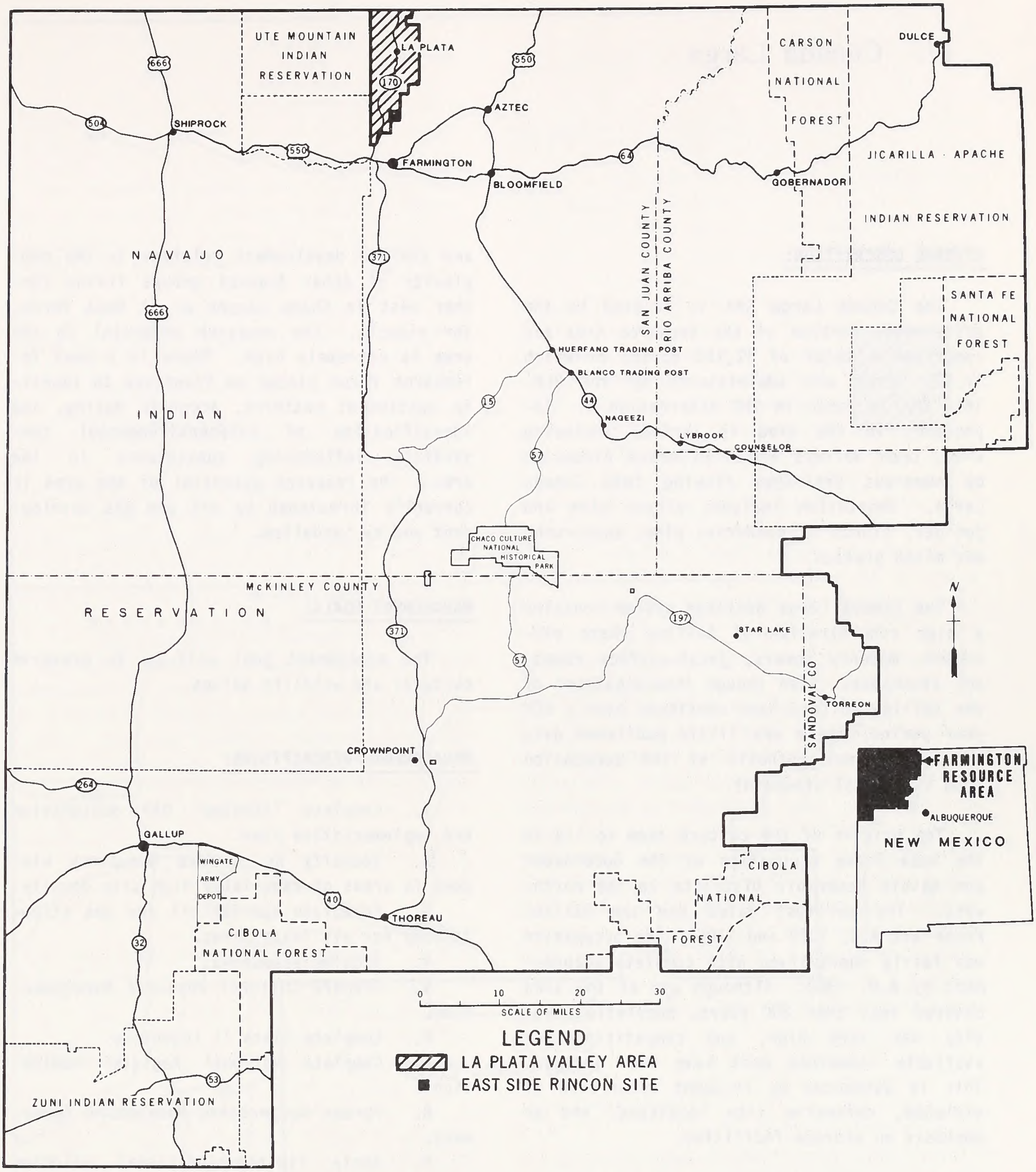
MANAGEMENT GOALS:

The management goal is to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2 No surface occupancy for Rincon Site.
3. Acquire easement for Rincon Site.
4. Preclude ROW placement in Rincon Site.
5. Close Rincon Site to fuelwood gathering.
6. Initiate emergency data recovery.
7. Activate patrol and surveillance routine.
8. Prepare Cultural Resource Management Plan.
9. Complete Class II inventory.
10. Implement oil and gas stipulations.
11. Prepare additional sites for nomination to National Register.

FARMINGTON RESOURCE AREA



B-16
LA PLATA VALLEY

17. Canada Larga

GENERAL DESCRIPTION:

The Canada Larga SMA is located in the easternmost portion of the Resource Area and comprises a total of 92,160 acres, of which 11,520 acres are administered by the BLM. This SMA is found in RMP Alternative B. Topography in the area is varied, including wide, open valleys and high mesas dissected by numerous drainages flowing into Canada Larga. Vegetation includes pinyon pine and juniper, stands of ponderosa pine, sagebrush, and mixed grasses.

The Canada Larga drainage system contains a high concentration of Gallina Phase pithouses, masonry towers, jacal-surface rooms, and stockades. Even though investigations of the Gallina culture have continued over a 60-year period, there are little published data and almost no synthesis of the occupation from a regional viewpoint.

The origins of the culture seem to lie in the Rosa Phase occupation of the Gobernador and Navajo Reservoir Districts to the northwest. The earliest dates for the Gallina Phase are A.D. 1059 and 1106. The occupation was fairly short-lived with complete abandonment by A.D. 1300. Although use of the area covered less than 300 years, population density was very high, and competition for available resources must have been intense. This is evidenced by frequent occurrence of violence, defensive site locations, and an emphasis on storage facilities.

In general, interpretations of Gallina culture have focused on its aberrant nature and stalled development relative to the complexity of other Anasazi groups living farther west in Chaco Canyon or at Mesa Verde, for example. The research potential in the area is extremely high. There is a need for research focus placed on inventory to identify settlement patterns, accurate dating, and identification of paleoenvironmental constraints influencing subsistence in the area. The research potential of the area is currently threatened by oil and gas development and by vandalism.

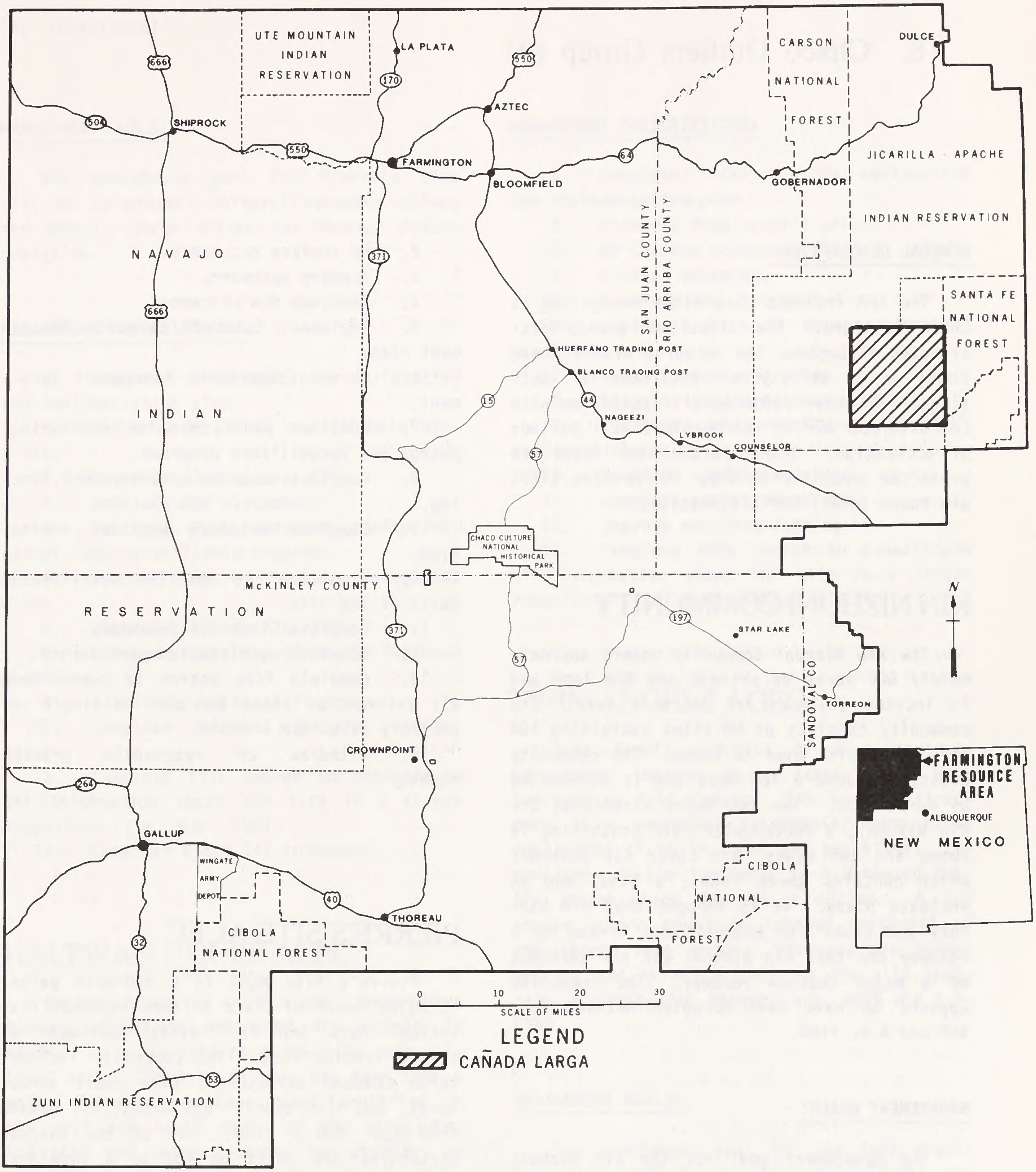
MANAGEMENT GOALS:

The management goal will be to preserve cultural and wildlife values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Identify no surface occupancy windows in areas of especially high site density.
3. Formulate special oil and gas stipulations for all lease areas.
4. Acquire easements.
5. Prepare Cultural Resource Management Plan.
6. Complete Class II inventory.
7. Complete National Register nominations.
8. Pursue Cooperative Management Agreement.
9. Apply limited/conditional wildfire suppression techniques.
10. Apply VRM Class II objectives.

FARMINGTON RESOURCE AREA



MAP B-17

CAÑADA LARGA

18. Chaco Outliers Group (9)

GENERAL DESCRIPTION:

The SMA includes nine sites recognized as Chaco Outliers. The sites are widely distributed throughout the Resource Area and are found in a variety of environmental settings. All have evidence of interaction with Chaco Canyon during the Pueblo II-III periods of occupation. Seven of the nine sites are protected under PL 96-550. These nine sites are found in all RMP alternatives.

KIN NIZHONI COMMUNITY

The Kin Nizhoni Community covers approximately 800 acres of private and BLM land and is located southeast of Ambrosia Lake. The community consists of 88 sites containing 104 structures with over 30 rooms. The community clusters around a low mesa and is surrounded by marshlands. The two major structures are Kin Nizhoni, a rectangular ruin containing 14 rooms and two kivas, and Lower Kin Nizhoni, which contains three rooms, a kiva, and an enclosed plaza. It is thought that Kin Nizhoni and Lower Kin Nizhoni were linked by a roadway and that Kin Nizhoni was the terminus of a major Chacoan roadway. The community appears to have been occupied between A.D. 950 and A.D. 1100.

MANAGEMENT GOALS:

The management goal for the Kin Nizhoni Community will be the protection of cultural values.

MANAGEMENT PRESCRIPTIONS:

1. Withdraw locatable and saleable minerals.
2. No surface occupancy.
3. Acquire easement.
4. Preclude ROW placement.
5. Implement Cultural Resource Management Plan.
6. Pursue Cooperative Management Agreement.
7. Continue photo, erosion monitoring, patrol and surveillance programs.
8. Complete cadastral survey and fencing.
9. Complete National Register nomination.
10. Stabilize and backfill deteriorated parts of the site.
11. Complete Class III inventory.
12. Complete prehistoric roads survey.
13. Complete file search to consolidate all information about the site in single repository (i.e. BLM - FRA).
14. Withdraw or reschedule grazing rights.

PIERRE'S SITE ACEC

Pierre's Site ACEC is a 440-acre parcel 10 miles north of Chaco Culture National Historical Park and 11.5 miles southwest of Blanco Trading Post. The community includes three Chacoan structures, nine small structures, and nine special use areas, all dating from A.D. 900 - 1150. Two of the Chacoan structures are built on top of a prominent butte while the third and largest is built on alluvial deposits. The prehis- toric "Great North Road" passes through the site adjacent to the largest structure. A total of 45 rooms and six kivas have been identified in these Chacoan structures while the smaller sites each include 5 to 10 rooms with an associated kiva.

MANAGEMENT GOALS:

The management goal for Pierre's site will be to protect cultural resource values and enhance these values for visitor interpretation.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw locatable and saleable minerals.
3. No surface occupancy.
4. Preclude ROW placement.
5. Continue photo, erosion monitoring, patrol, and surveillance programs.
6. Prepare Cultural Resource Management Plan.
7. Complete cadastral survey.
8. Close to grazing, close to fuelwood gathering.
9. Stabilize and backfill areas.
10. Complete National Register nomination.
11. Complete file search to consolidate all information about the site in a single repository (i.e. BLM - FRA).
12. Complete Class III inventory.

HALFWAY HOUSE ACEC

Halfway House is a one-story, rectangular masonry structure estimated to contain 12 rooms. It is located on a low rise near Gallegos Wash. Segments of what may have been a major Chacoan road have been identified on the east and south sides of the structure. The core and veneer masonry and ceramics on the site indicate an occupation between A.D. 975 and A.D. 1150. The site includes 40 acres.

MANAGEMENT GOALS:

The management goal for Halfway House will be to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw from mineral sales.
3. No surface occupancy.
4. Acquire easement.
5. Preclude ROW placement.
6. Implement Cultural Resource Management Plan.
7. Close to fuelwood sales.
8. Close to land treatment projects.
9. Continue photo-monitoring, patrol and surveillance programs.
10. Backfill vandalized areas.
11. Complete cadastral survey.
12. Improve existing fencing.
13. Complete file search to consolidate all information about the site in a single repository (i.e. BLM - FRA).

TWIN ANGELS ACEC

Twin Angels consists of four separate structures located on a steep cliff edge overlooking Kutz Canyon. The largest structure is a one-story rectangular room block containing 17 to 19 rooms and two kivas. Immediately to the southwest is a U-shaped rubble mound which may be a shrine. A low square rubble mound is located northwest of the larger room block. The core and veneer masonry and ceramics found at the site indicate an occupation between A.D. 1000 and A.D. 1250.

MANAGEMENT GOALS:

The management goal for the Twin Angels Community will be to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Withdraw from saleable minerals.
2. No surface occupancy.

3. Acquire easement.
4. Preclude ROW placement.
5. Close to fuelwood cutting.
6. Close to land treatment projects.
7. Withdraw from grazing.
8. Implement Cultural Resource Management Plan.
9. Continue photo-monitoring, erosion monitoring, patrol and surveillance programs.
10. Complete cadastral survey.
11. Complete fencing project.
12. Stabilize and backfill areas.
13. Complete Class III inventory.
14. Complete file search to consolidate all information about the site in a single repository (i.e. BLM - FRA).

JACQUES SITE

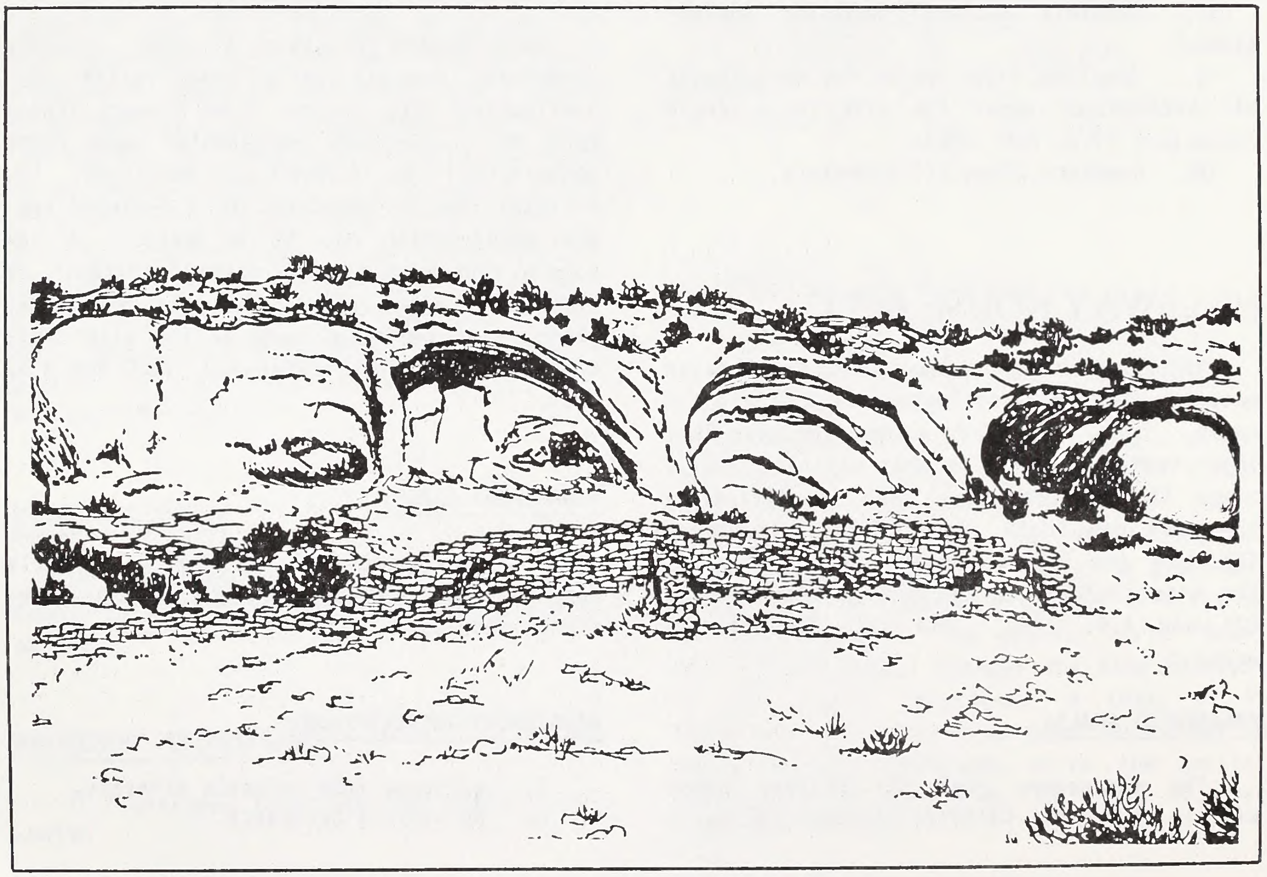
The Jacques Site is located on an alluvial terrace south of the San Juan River and covers 40 acres of private surface. Included within the area is a one-story, L-shaped Chacoan structure with an estimated 25 rooms, an open plaza, and a kiva. Exposed masonry walls reveal Chacoan building attributes and large rooms. At least three smaller structures are found near the Chacoan structure. The occupation appears to have occurred from about A.D. 1075 to the 1200s. The site is listed on the National Register of Historic Places.

MANAGEMENT GOALS:

The management goal for the Jacques Site will be to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Pursue Cooperative Management Agreement.



18. (Continued)

2. Prepare Cultural Resource Management Plan.

MORRIS 41

Morris 41 is a privately owned site covering 85 acres and is currently listed on the National Register of Historic Places. Although the site is best known for its Chacoan occupation, it also contains Basketmaker III and early Pueblo components. The community is located on a high gravel terrace west of the La Plata River. It contains one of the densest concentrations of Anasazi sites in the La Plata Valley with over 30 structures in the cluster. The most outstanding feature of the community is a two-story structural mound with about 75 rooms, three kivas, and an enclosed great kiva. Chacoan architectural characteristics are clearly evident in exposed walls. The area was probably occupied continuously from about A.D. 500 through the 1200s.

MANAGEMENT GOALS:

The management goal for Morris Site 41 will be to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Prepare a Cultural Resource Management Plan.
2. Pursue Cooperative Management Agreement with the owner.

ANDREWS RANCH COMMUNITY

The Andrews Ranch Community is located on the north side of the Red Mesa Valley and east of Casamero Draw. There are at least 21 structures containing approximately 106 rooms and three isolated great kivas. A large multi-story Chacoan structure with 14 rooms and five kivas has also been recorded. Jacal and masonry structures indicated the site was well established by A.D. 800 with the occupation lasting until about A.D. 1050. The site covers approximately 950 acres of private land.

MANAGEMENT GOALS:

The management goal for the Andrews Ranch Community will be to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Prepare a Cultural Resource Management Plan.
2. Pursue Cooperative Management Agreement with the surface owner.

HOLMES GROUP

The Holmes Group is a 100-acre archeological community located 15 miles north of Farmington, New Mexico. At one time, this community had National Landmark Status but its status was revoked because of the extensive vandalism that has taken place. The site has recently been included in a nomination to the National Register. The large outlier community contains the remains of at least 30 small houses, one L-shaped Chacoan structure with a plaza open to the southeast, a second large structure thought to be Chacoan because of its size, and one isolated great kiva. The small houses, Chacoan structures, and associated refuse mounds are in close proximity with cultural material covering most of the SMA. The area selected for consideration includes approximately 250 rooms and 60 kivas. Ceramics on the site range from Late Pueblo II through Late Pueblo III, indicating occupation and use from about A.D. 975 to A.D. 1300.

MANAGEMENT GOALS:

The management goal for the Holmes Group will be to protect cultural resource values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw from locatable and saleable minerals.
3. No surface occupancy.
4. Acquire easement.
5. Preclude ROW placement.
6. Complete fencing project.
7. Formalize patrol and surveillance program.
8. Prepare Cultural Resource Management Plan.
9. Develop Cooperative Management Agreement.
10. Evaluate for inclusion in PL 96-550.
11. Withdraw from grazing.

CASAMERO COMMUNITY ACEC

The Casamero Community includes a large multi-story pueblo with 20 ground-floor rooms and one kiva. A second kiva may be located in the plaza associated with this structure. A great kiva is located 200 feet south of the pueblo and 24 additional structures have been recorded in the surrounding area. The site was excavated in 1966 and 1967 and stabilized by the Bureau of Land Management in 1975, 1976, and 1986. The community was established around A.D. 900 and abandoned by A.D. 1125. The community is situated at the base of Ojo Tecolote Mesa and overlooks Casamero Draw. The Bureau of Land Management administers all 160 acres within the boundaries of the SMA.

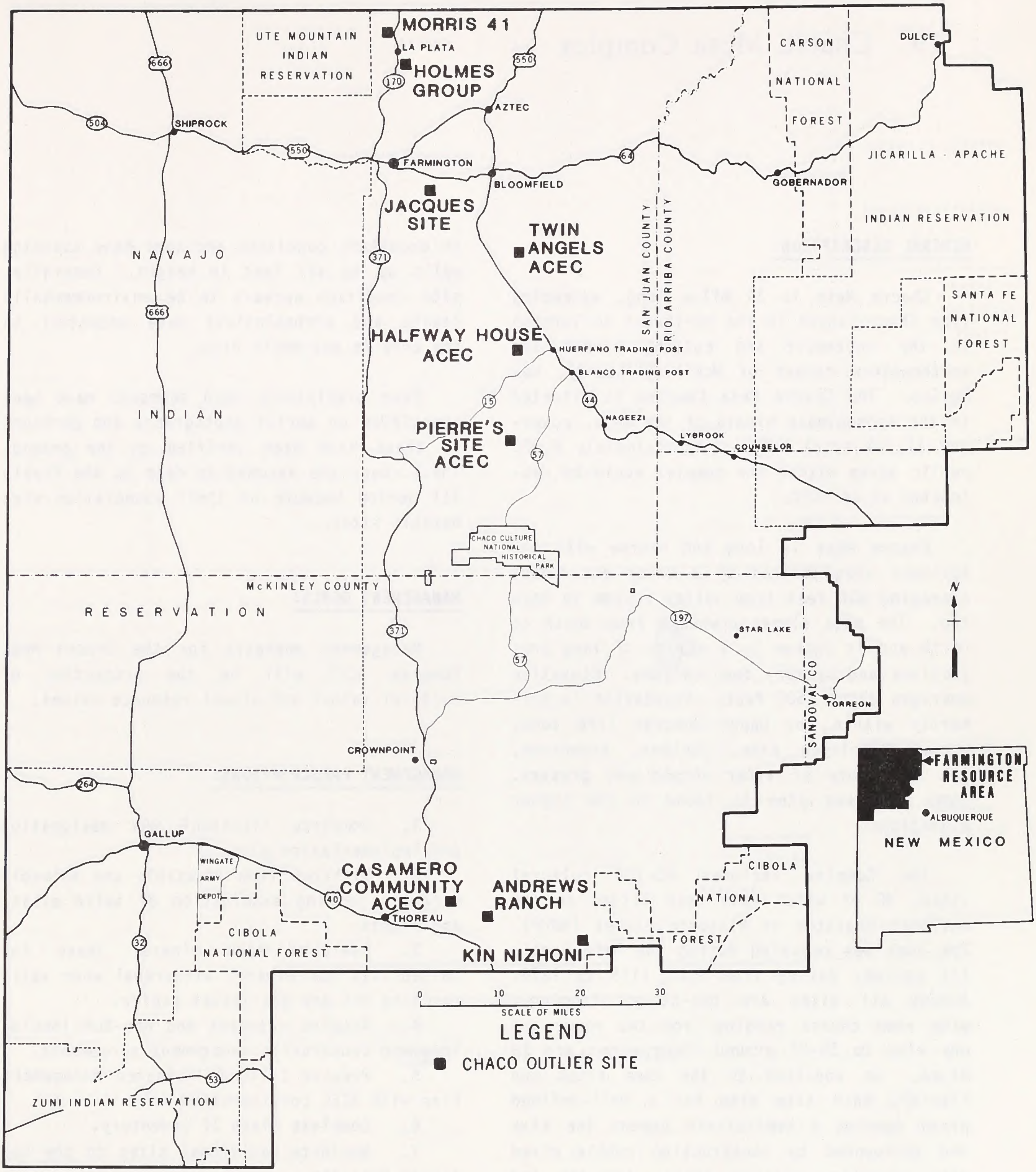
MANAGEMENT GOALS:

The management goal for the Casamero Community will be the protection of cultural and recreation values.

MANAGEMENT PRESCRIPTIONS:

1. Authorize existing ROW.
2. Withdraw from grazing.
3. Close to fuelwood gathering.
4. Implement Cultural Resource Management Plan.
5. Pursue Cooperative Management Agreement.
6. Complete Class III inventory.
7. Evaluate for inclusion in PL 96-550.
8. Continue photo-monitoring, patrol and surveillance, cattle and erosion monitoring programs.
9. Fence boundary.
10. Stabilize sites.
11. Develop visitor-use facilities.
12. Complete aerial photo documentation and photogrammetric contour maps.
13. Complete National Register nomination.
14. Complete prehistoric roads survey.

FARMINGTON RESOURCE AREA



MAP B-18

CHACO OUTLIERS GROUP

19. Chacra Mesa Complex

GENERAL DESCRIPTION:

Chacra Mesa is 34 miles long, extending from Chaco Canyon in the northwest to Torreon in the southeast and cutting across the northeastern corner of McKinley County, New Mexico. The Chacra Mesa Complex is situated in the approximate middle of the mesa, covering 11,330 total acres. Approximately 6,370 public acres within the complex would be designated as an ACEC.

Chacra Mesa is long and narrow with the southern side defined by a sheer escarpment averaging 500 feet from valley bottom to mesa top. The mesa slopes downward from south to north and is broken by a series of long projections and by many deep canyons. Elevation averages about 6500 feet. Vegetation is primarily within the Upper Sonoran life zone, including pinyon pine, juniper, sagebrush, and a variety of other shrubs and grasses. Some ponderosa pine is found in the higher elevations.

The Complex includes 80-100 cultural sites, 40 of which have been listed on the National Register of Historic Places (NRHP). The area was occupied during the late Pueblo III period, dating from A.D. 1175 to 1274. Almost all sites are one-story structures with room counts ranging from two rooms and one kiva to 50-75 ground floor rooms and 13 kivas. In addition to the room block and kiva(s), each site also has a well-defined plaza forming a semi-circle beyond the kiva and surrounded by construction rubble mixed with ceramics, chipped stone, and ash and charcoal deposits.

There has been very little vandalism in the area and none of the disturbance appears to be recent. Most structures have been reduced to rubble mounds, but these sites are in excellent condition and some have standing walls up to six feet in height. Generally, site condition appears to be environmentally stable and archeological data potential in the area is extremely high.

Four prehistoric road segments have been identified on aerial photographs and portions of these have been verified on the ground. These roads are assumed to date to the Pueblo III period because of their association with datable sites.

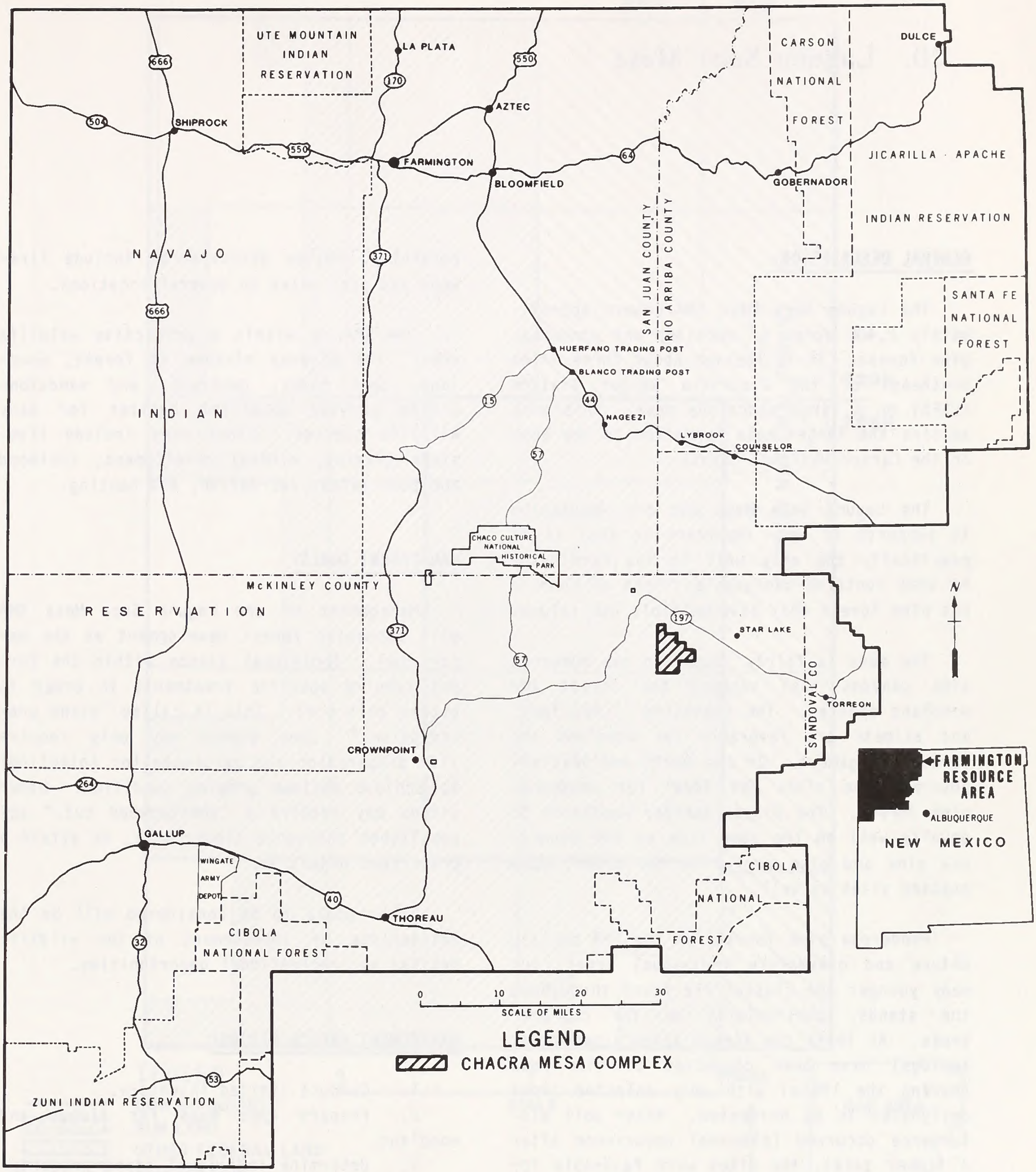
MANAGEMENT GOALS:

Management emphasis for the Chacra Mesa Complex ACEC will be the protection of cultural values and visual resource values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Withdraw from locatable and saleable minerals pending examination of valid existing rights.
3. Evaluate each mineral lease for suitability for mineral withdrawal when valid existing oil and gas leases expire.
4. Acquire easement and non-BLM inholdings and cooperative management agreements.
5. Prepare Cultural Resource Management Plan with ACEC consideration.
6. Complete Class II inventory.
7. Nominate additional sites to the National Register.
8. Repair stabilized walls at sites CM 100 and 101.
9. Apply limited/conditional wildfire suppression methods.
10. Apply VRM Class II objectives.

FARMINGTON RESOURCE AREA



MAP B-19

CHACRA MESA COMPLEX

20. Laguna Seca Mesa

GENERAL DESCRIPTION:

The Laguna Seca Mesa SMA covers approximately 2,400 acres of woodland and ponderosa pine forest. It is located about three miles southeast of the Jicarilla Ranger Station (USFS) on a large sandstone mesa. This mesa adjoins the larger mesa formation to the east on the Carson National Forest.

The Laguna Seca Mesa and the vegetation it supports is very important in that it is practically the only unit in the Farmington RA that contains manageable tracts of ponderosa pine forest that have multiple use values.

The mesa is fairly rough and has numerous side canyons that support the forest and woodland species. The elevation (7,500 feet) and climate are favorable for woodland and forest management. On the north and east exposures, the sites are ideal for ponderosa pine forest. The pinyon-juniper woodlands do equally well on the same site as the ponderosa pine and also thrive on the drier, more exposed sites as well.

Ponderosa pine forests on the SMA contain mature and overmature individual trees, but many younger age classes are found throughout the stands, particularly on the cut-over areas. At least two timber sales (commercial sawlogs) have been conducted on this mesa (during the 1960s) with only selected trees designated to be harvested. After soil disturbance occurred (a normal occurrence after a timber sale), the sites were favorable for natural regeneration. In most of the cutover areas this natural regeneration occurred successfully. Other disturbances include firewood and post sales in several locations.

The SMA is within a productive wildlife area. The diverse mixture of forest, woodland, open parks, oakbrush, and sandstone bluffs provide excellent habitat for many wildlife species. Other uses include livestock grazing, mineral development, fuelwood and post sales, recreation, and hunting.

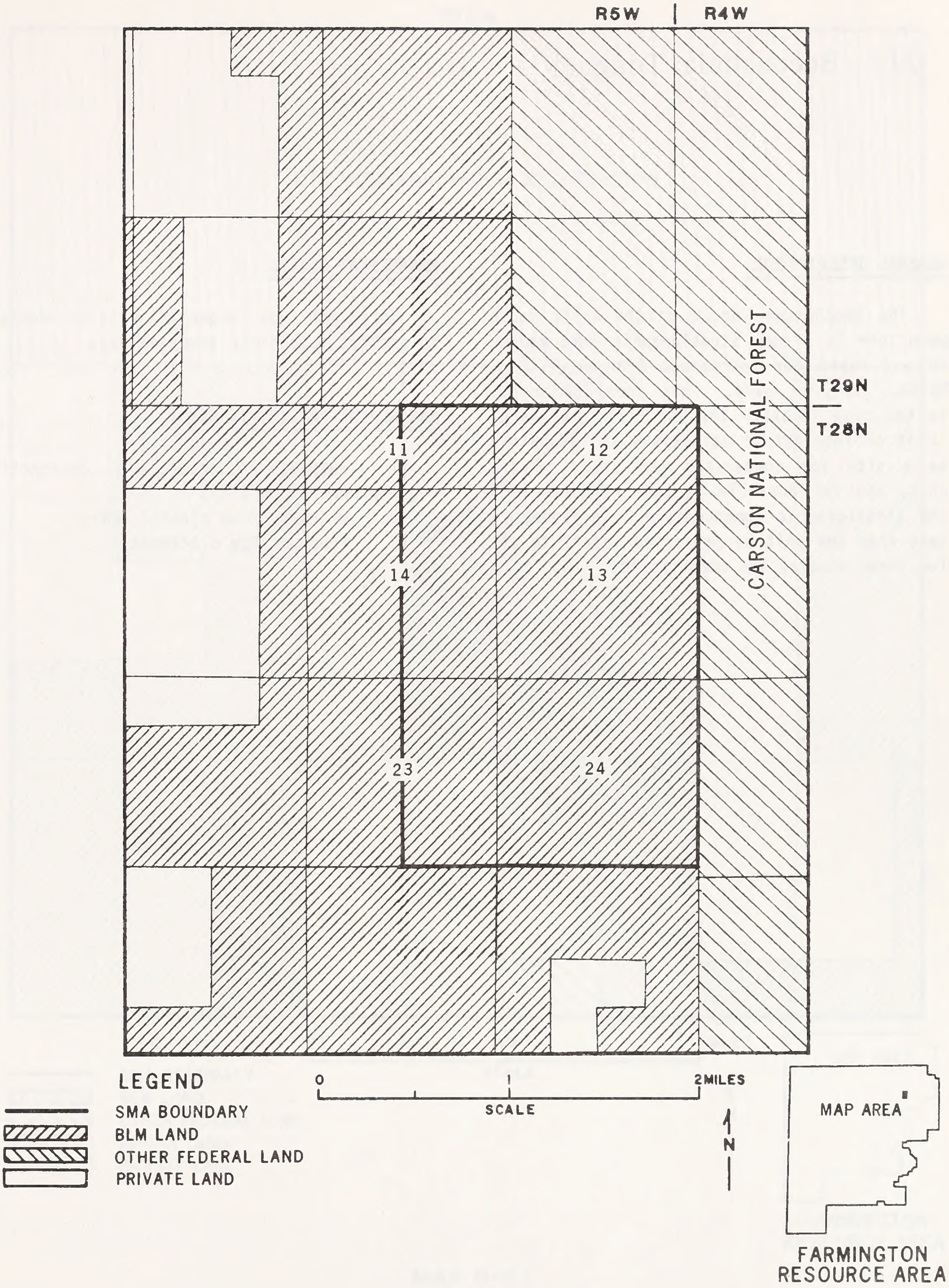
MANAGEMENT GOALS:

Management of the Laguna Seca Mesa SMA will emphasize forest development as the major goal. Individual stands within the forest require specific treatments in order to attain this goal. This is called "stand prescription." Some stands may only require site preparation and reforestation (planting) to achieve optimum growing condition. Other stands may require a "shelterwood cut," accomplished through a timber sale, to attain a prescribed objective.

Other goals to be considered will be the maintenance or improvement of the wildlife habitat and recreational opportunities.

MANAGEMENT PRESCRIPTIONS:

1. Conduct limited inventory.
2. Prepare type maps for timber and woodland.
3. Determine individual stand prescriptions.
4. Prepare and implement activity plan.



MAP B-20

LAGUNA SECA MESA

21. Beechatuda Tongue

GENERAL DESCRIPTION:

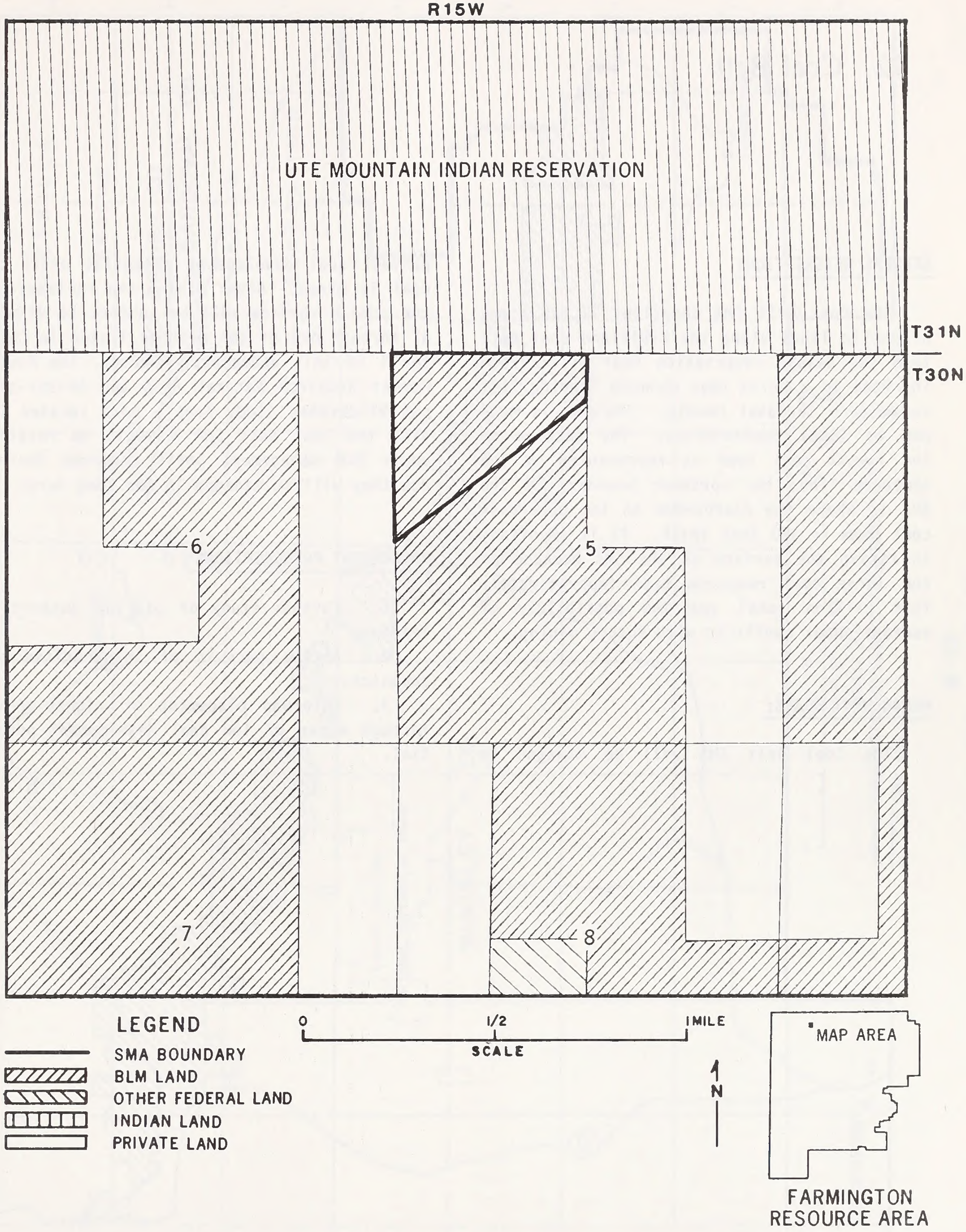
The Beechatuda Tongue of the Cliff House Sandstone is a rock stratigraphic unit mapped in and named for Beechatuda Draw in T.30N., R.15W., Sec. 5; NW/4. This area (80 acres) is the type locality for the unit. As such, it is of interest to scientists and educators as a site for comparison and study of the unit, and for possible further refinement of the stratigraphic nomenclature. It is important that the unit be preserved intact to allow these studies and comparisons.

MANAGEMENT GOALS:

The Beechatuda Tongue SMA will be managed to protect scientific study values.

MANAGEMENT PRESCRIPTIONS:

1. Complete "closed" ORV designation and implementation plan.
2. Withdraw from mineral entry.
3. Preclude ROW placement.



MAP B-21

BEECHATUDA TONGUE

22. Coal Belt

GENERAL DESCRIPTION:

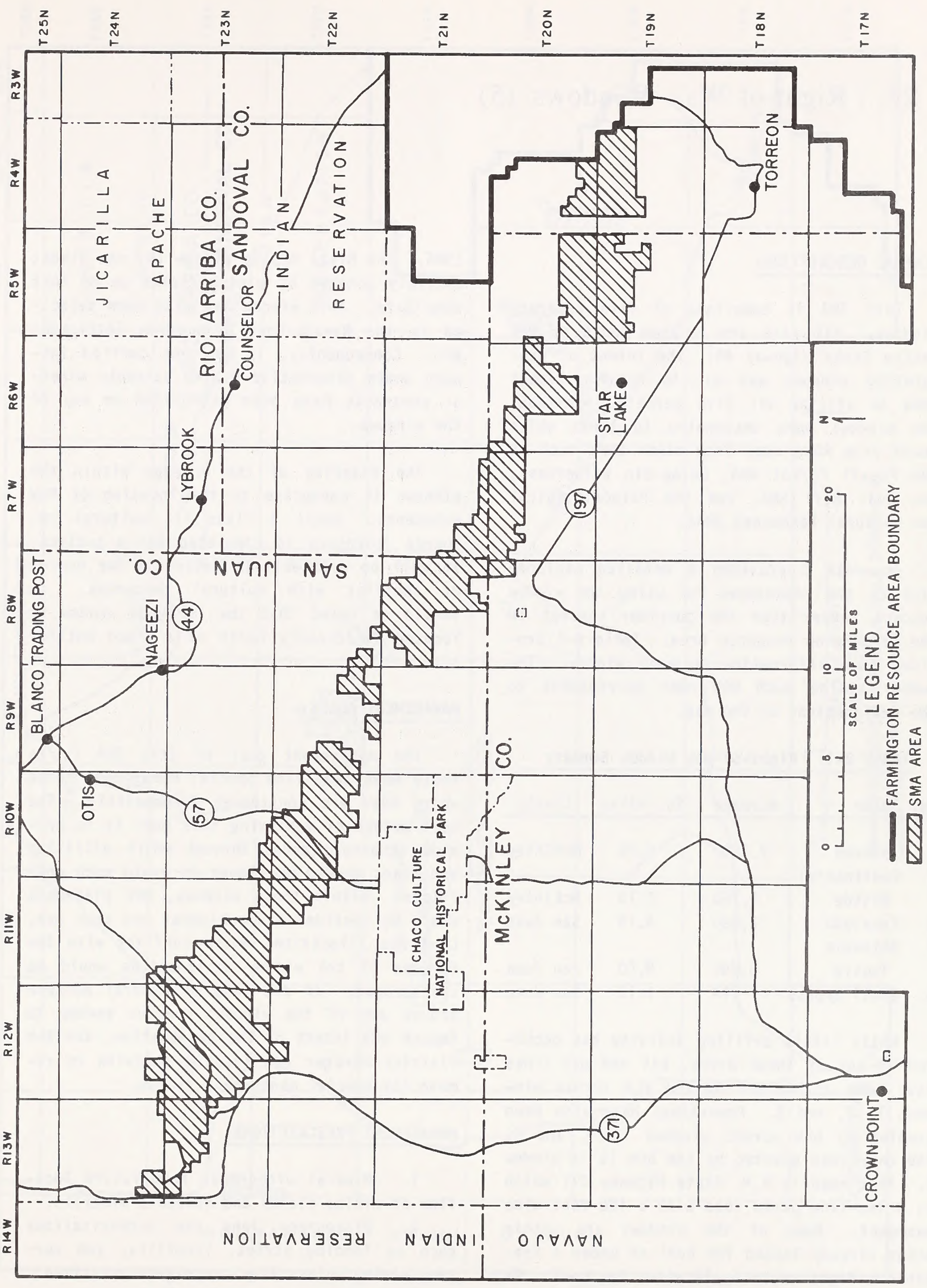
The Coal Belt SMA comprises 77,945 acres of public lands along the Fruitland coal belt from the Navajo reservation near Bisti Trading Post to a point near Johnson Trading Post in western Sandoval County. The SMA is mapped on legal subdivisions. The outcrop of the lowest coal seam is represented by the southern line; the northern boundary of the SMA is where the overburden on the uppermost coal seam is 350 feet thick. It is important to retain the surface of the SMA because of the large coal resource base (approximately four billion tons) and the possibility of surface owner conflicts with future mining.

MANAGEMENT GOALS:

The Coal Belt SMA will be managed to protect coal development potential until the coal is mined. After mining and reclamation, the public surface will be subject to disposal through one of the methods listed in Chapter 1 of this document. However, the Fossil Forest Research Natural Area and Ah-shi-sle-pah Wilderness Study Area - both located inside the Coal Belt SMA - would be retained under BLM management until Congress decides how they will be managed in the long term.

MANAGEMENT PRESCRIPTIONS:

1. Further study of coal in support of leasing.
2. Active pursuit of unauthorized occupanices.
3. Informed placement of rights-of-way through areas of low coal development potential.



B-22
COAL BELT

23. Right-of-Way Windows (5)

GENERAL DESCRIPTION:

This SMA is comprised of five separate windows. All five are located south of New Mexico State Highway 44. The intent of designating windows was not to require linear ROWs to utilize all five parcels. Instead, the windows were designated in areas which would draw ROWs away from other SMAs such as the Fossil Forest RNA, De-na-zin Wilderness, the Coal Belt SMA, and the Paleontological and Cultural Resources SMAs.

Appendix C provides a detailed explanation of the advantages for using the window concept rather than the corridor concept in the Farmington Resource Area. Table B-1 provides some information on each window. The number beside each ROW name corresponds to the designations on the map.

TABLE B-1: Right-of-Way Window Summary

No.	Name	Acreage	Sq. Miles	County
1.	Torreon	2,720	4.25	McKinley
2.	Continental Divide	1,760	2.75	McKinley
3.	Escavada	2,680	4.19	San Juan
4.	Betonnie Tsosie	5,440	8.50	San Juan
5.	Bisti Bypass	714	1.12	San Juan

While little drilling activity has occurred in any of these areas, oil and gas lines have been authorized by the BLM across windows 1, 3, and 5. Powerlines have also been granted by BLM across windows 1, 3, and 4. The only road granted by the BLM is in window 5. That road is N.M. State Highway 371 which is a two-lane paved road with a 100-foot wide easement. None of the windows are within areas already leased for coal or under a Preference Right Lease Application for coal. As for mining claims, window 3 had approximately 24 claims within its boundary as of November 1985. The Bisti Bypass window (5) was almost entirely covered by mining claims as of that same date. This window has also been selected in the Navajo/Hopi Relocation Settlement Act. Consequently, it was not carried forward under Alternative D. No saleable mineral contracts have been authorized on any of the windows.

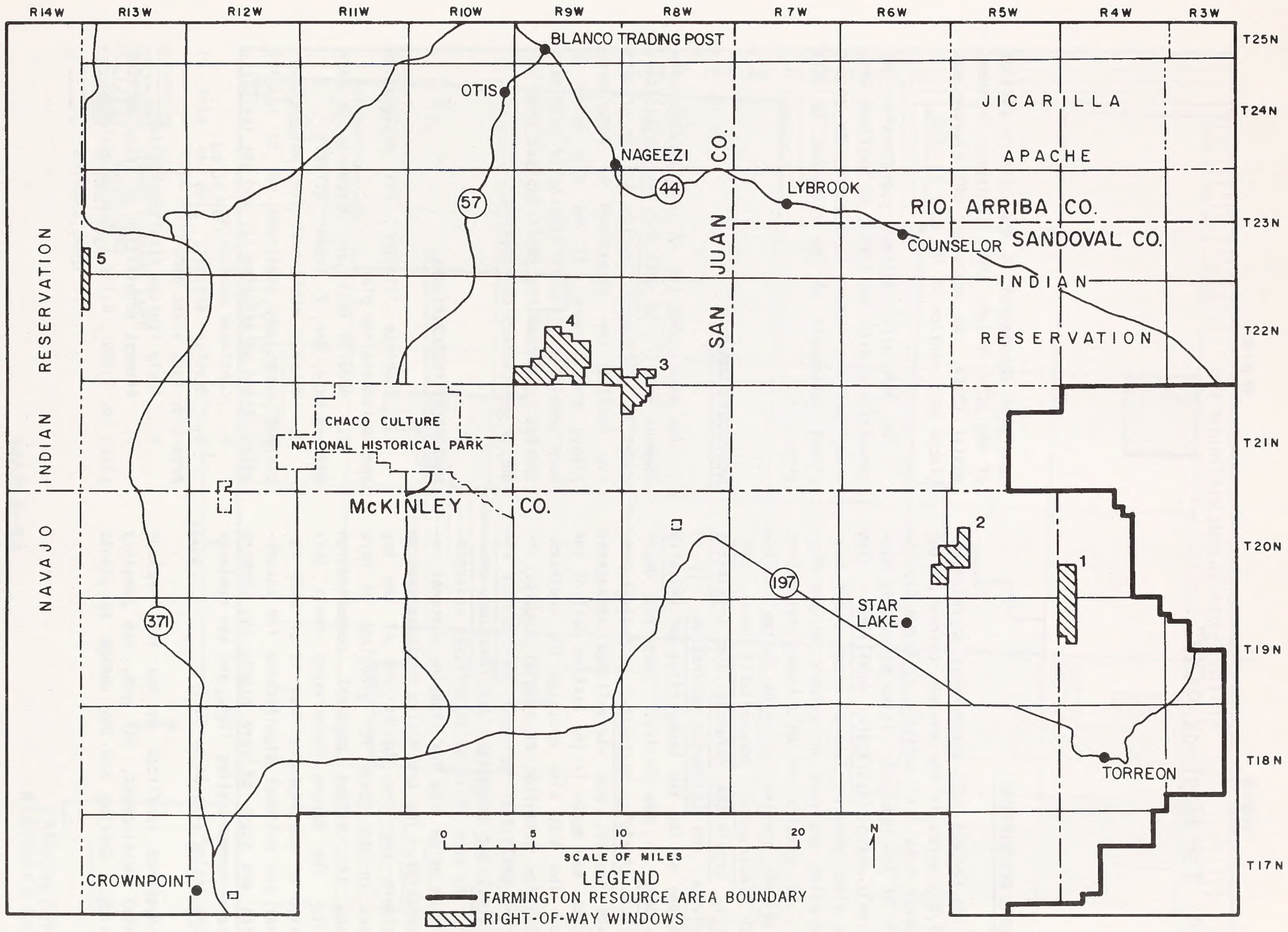
The majority of the acreage within the windows is conducive to the location of ROW easements. Until a Class III cultural resource inventory is completed for a project, it will be difficult to determine the degree of conflict with cultural resources. It should be noted that the Escavada window is located immediately north of a Chaco Outlier site.

MANAGEMENT GOALS:

The management goal of this SMA is to route ROWs away from Special Management Areas where ROWs are considered incompatible. The best method of achieving this goal is to provide strategic areas through which utilities and roads should be placed to avoid such conflicts. Within these windows, ROW placement would be considered the highest and best use. Land use allocations which conflict with the purpose of the window designations would be discouraged. If the land or mineral pattern around any of the windows changes enough to impact the intent of the designation, the BLM District Manager can issue a decision to remove its special management status.

MANAGEMENT PRESCRIPTIONS:

1. Mineral withdrawal from future location of mining claims and saleable minerals.
2. Discourage land use authorizations such as landing strips, landfills, and surface mining unless they are highly justified.
3. Develop an activity plan.
4. Institute full fire suppression.



B-23

RIGHT-OF-WAY WINDOWS

24. The Hogback ACEC

GENERAL DESCRIPTION:

The Hogback ACEC encompasses approximately 7,520 acres in the western corner of the Resource Area. In addition to known populations of the federally listed endangered Mancos milk-vetch (*Astragalus humillimus*) this area also contains several other plant species which are rare or endemic to New Mexico. It contains the only known populations of several species including Cottam's milk-vetch (*Astragalus monumentalis* var. *cottamii*), *Cryptantha paradoxa* and *Cryptantha recurvata*, and *Eriogonum scabrellum*. It is also one of the few known sites of *Phacelia splendens* in New Mexico. Succulent dwarf saltbush (*Atriplex pleiantha*), a federal candidate species and state-listed endangered species, may occur in the eastern half of the area. The ACEC also contains the southernmost range extension of several species including small-leaf mahogany (*Cercocarpus intricatus*) and singleleaf ash (*Fraxinus anomala*). As such it is of significant scientific value as an area for studying ecotonal relationships. The New Mexico Heritage program considers the area to be one of two top places in the state for groupings of rare plants (P. Knight personal communication 1986). The Nature Conservancy feels this portion of the Resource Area is of both regional and national significance for conservation and study of rare plants (W. Dunmire personal communication 1986) and has nominated the entire area as an ACEC.

Resource conflicts in the area include mineral development, ORV use, and possibly grazing. Grazing and ORV damage to plants have been documented in the eastern portion of the ACEC (Knight 1981, Ecosphere Environmental 1985). An emergency ORV closure was placed on a portion of the ACEC in 1985.

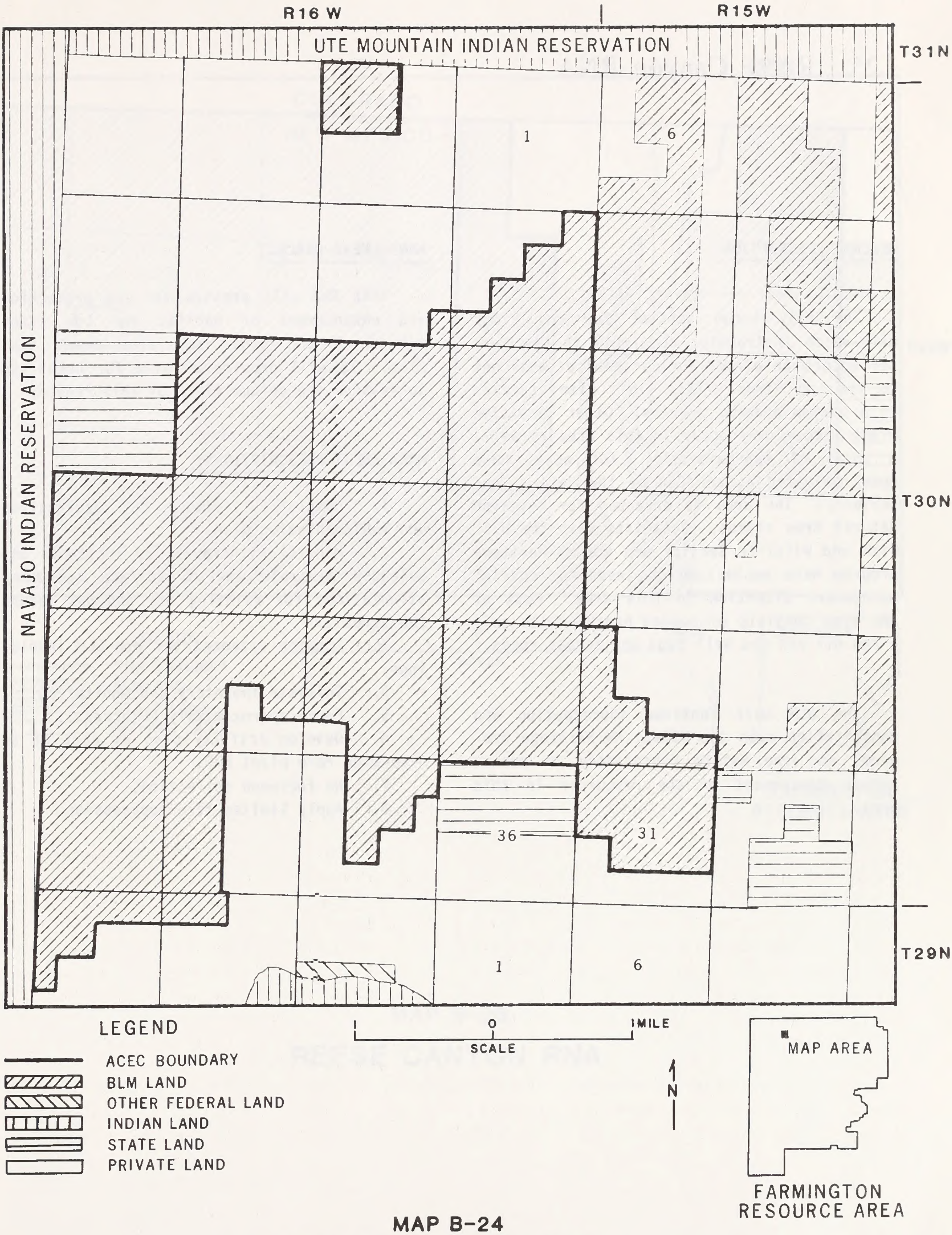
The BLM will continue coordination and consultation with the USFWS, NM Heritage Program, and the Nature Conservancy to ensure proper management of the resources in this area.

MANAGEMENT GOALS:

The main objective of this special management area is to meet BLM responsibilities under the Endangered Species Act to protect the habitat for threatened or endangered plants and animals. It may also serve to help prevent the future listing of candidate species by protecting their habitat from undue or unnecessary degradation.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Acquire necessary easements to main SMA and NW/4, Sec. 2, T.30N., R.16W.
3. Mineral withdrawal for unleased/unclaimed areas and continued use of special stipulations on existing oil and gas leases.
4. Continued monitoring.
5. Develop activity plan as part of Area-wide rare plant HMP.
6. Apply limited fire suppression.
7. Attempt acquisition of state section (Sec. 16, T.30N., R.16W.) through exchange.



MAP B-24
THE HOGBACK ACEC

25. Reese Canyon RNA

GENERAL DESCRIPTION:

The only known habitat for Los Pinos milk-vetch (Astragalus oocalyus) in New Mexico occurs in pinyon-juniper habitat adjacent to the Los Pinos River. This plant species is a narrow endemic species. Other sensitive plant species may occur in this area as well. A total of approximately 1,600 acres have been nominated as an ACEC by the Nature Conservancy. The area is proposed for Research Natural Area status. Botanists with the U.S. Fish and Wildlife Service and the NM Heritage program have emphasized the need for special management attention in this area. Most of the area consists of rugged benches with only a few oil and gas well pads and access roads.

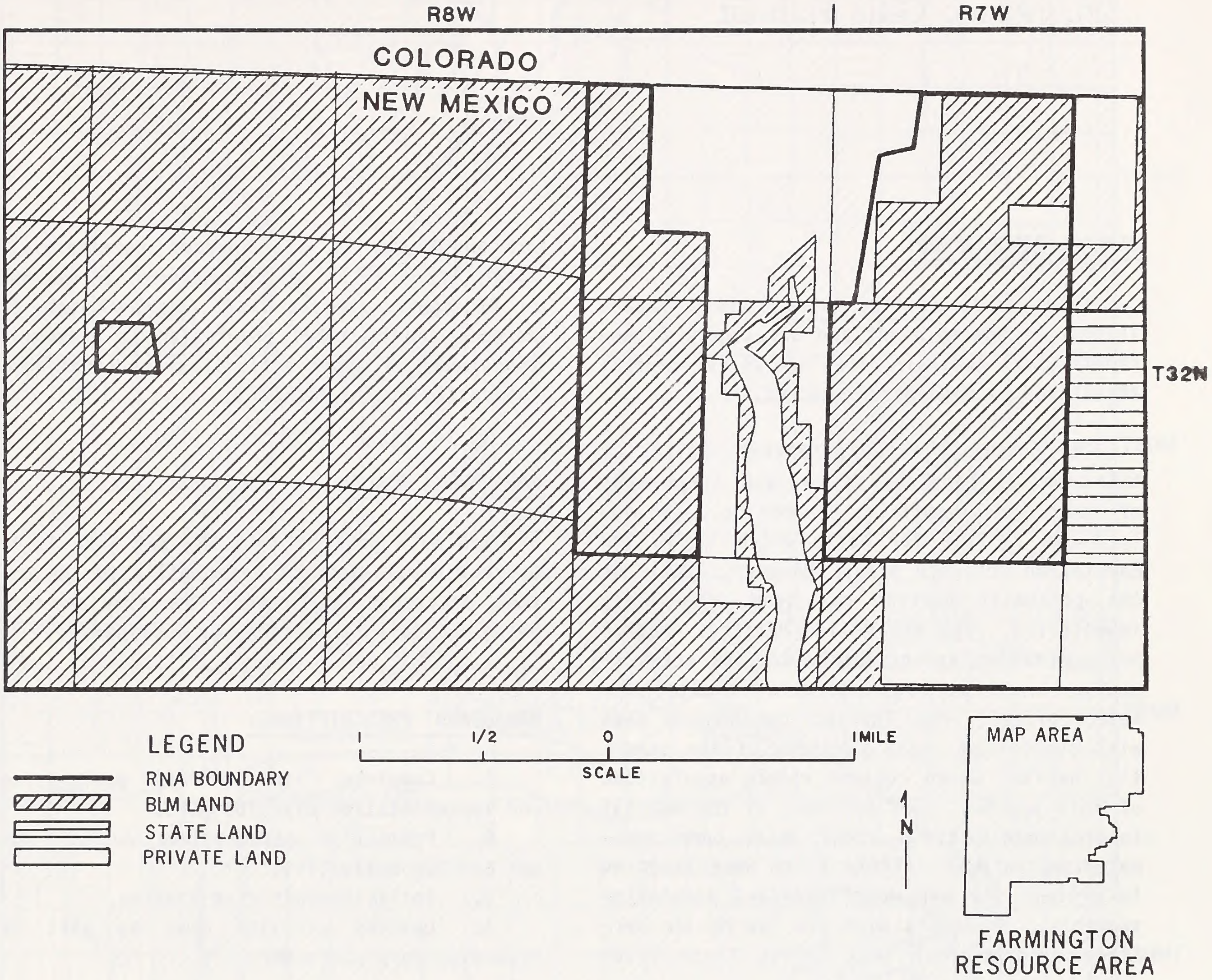
The BLM will continue coordination and consultation with the USFWS, NM Heritage Program, and the Nature Conservancy to ensure proper management of the resources in this area.

MANAGEMENT GOALS:

This RNA will provide for the protection and enhancement of habitat for Los Pinos milk-vetch and other sensitive plant species. It will provide an area for botanists to examine the unique flora of this region.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Mineral withdrawal for locatable and saleable minerals and no surface occupancy stipulations for existing oil and gas leases (80 acres).
3. Acquire easement and non-BLM inholdings.
4. Initiate inventory and monitoring.
5. Fence approximately 80 acres.
6. Develop activity plan as part of an Area-wide rare plant HMP.
7. No fuelwood collection.
8. Apply limited fire suppression.



MAP B-25

REESE CANYON RNA

26. Aztec Gilia Habitat

GENERAL DESCRIPTION:

Aztec gilia (Gilia formosa) is a state-listed endangered plant and a Category 2 candidate for possible listing as a federal threatened or endangered species.

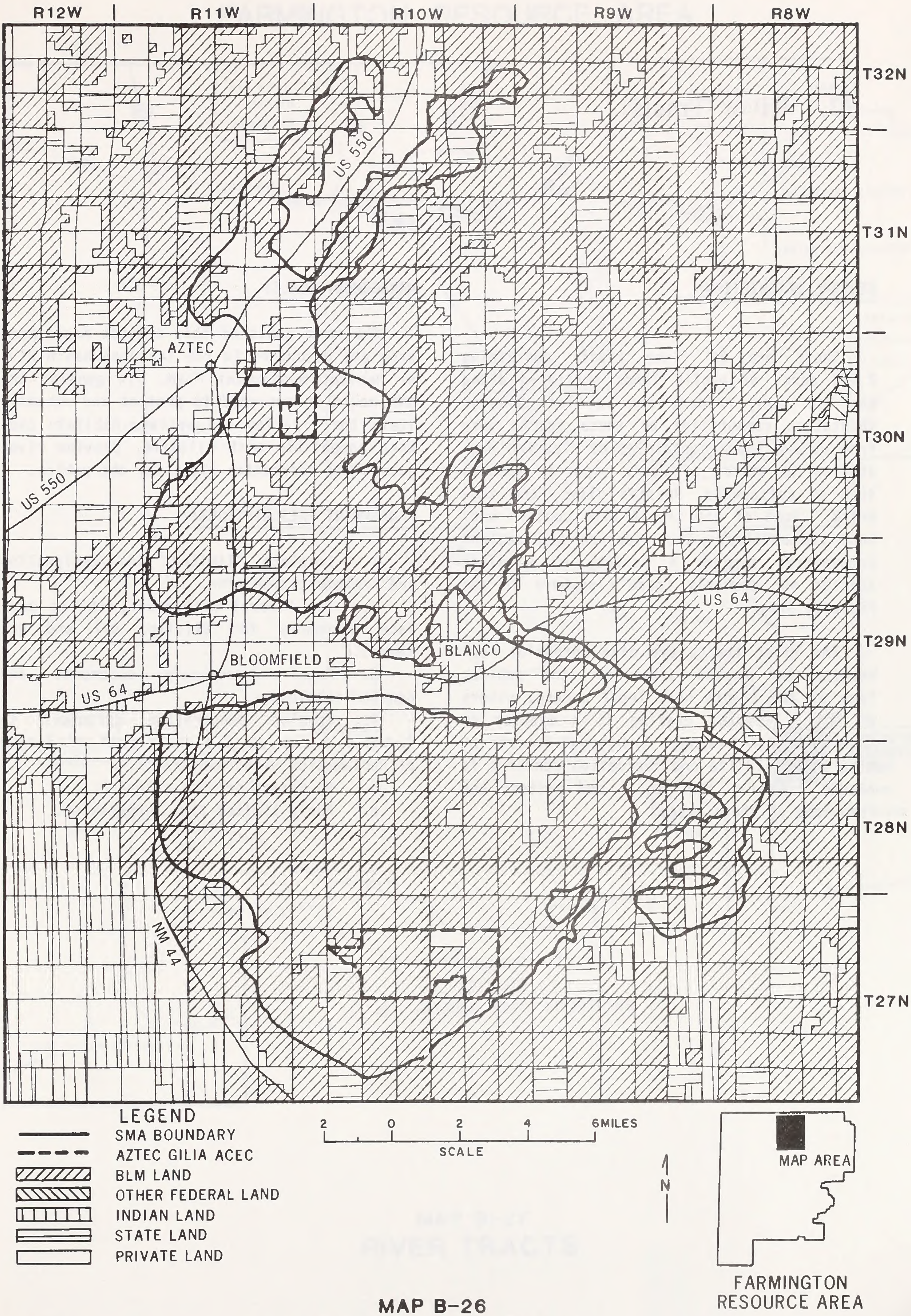
The presently known potential habitat of this species consists of badland areas east of Aztec and Bloomfield, New Mexico. The only known habitat for Aztec gilia is in the Farmington Resource Area. However, little of the potential habitat has been intensively inventoried. The New Mexico Heritage Program has identified approximately 125,400 acres of public lands as high potential habitat for Aztec gilia. The special management area will consist of those portions of the potential habitat which contain viable populations of this species. Two portions of the habitat (approximately 6,400 acres) have been nominated as an ACEC. These areas were selected to protect the two most important population segments. Botanists with the New Mexico Heritage program feel that unless these areas are protected it will become necessary to place Aztec gilia on the Federal Threatened or Endangered species list. Approximately 80 percent of the total population is presently threatened by human activities (personal communication P. Knight 1986).

MANAGEMENT GOALS:

The main goal of this SMA and ACEC is to protect populations of Aztec gilia to the extent necessary to prevent the species from being listed as threatened or endangered.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan for ACEC.
2. Protective stipulations on oil and gas and ROW activities.
3. Initiate monitoring studies.
4. Develop activity plan as part of Area-wide rare plant HMP.



MAP B-26
AZTEC GILIA HABITAT

27. River Tracts

GENERAL DESCRIPTION:

There are 39 river tracts containing 2,953 acres of public lands scattered along the San Juan, Animas, and La Plata Rivers. Vegetation communities on these tracts vary from upland types containing no riparian vegetation to stands of woody riparian species such as cottonwood, Russian olive, and tamarisk. Some of the tracts also contain wetland communities. The riparian and wetland communities support a variety of wildlife species not commonly found elsewhere in the Resource Area.

The river tracts are also potential recreation and access sites for the public. Some of the tracts have legal access, others do not. Trespass grazing is a problem on several of the tracts. Management incorporating both wildlife and recreation concerns is needed to serve the public and protect the resources on these areas.

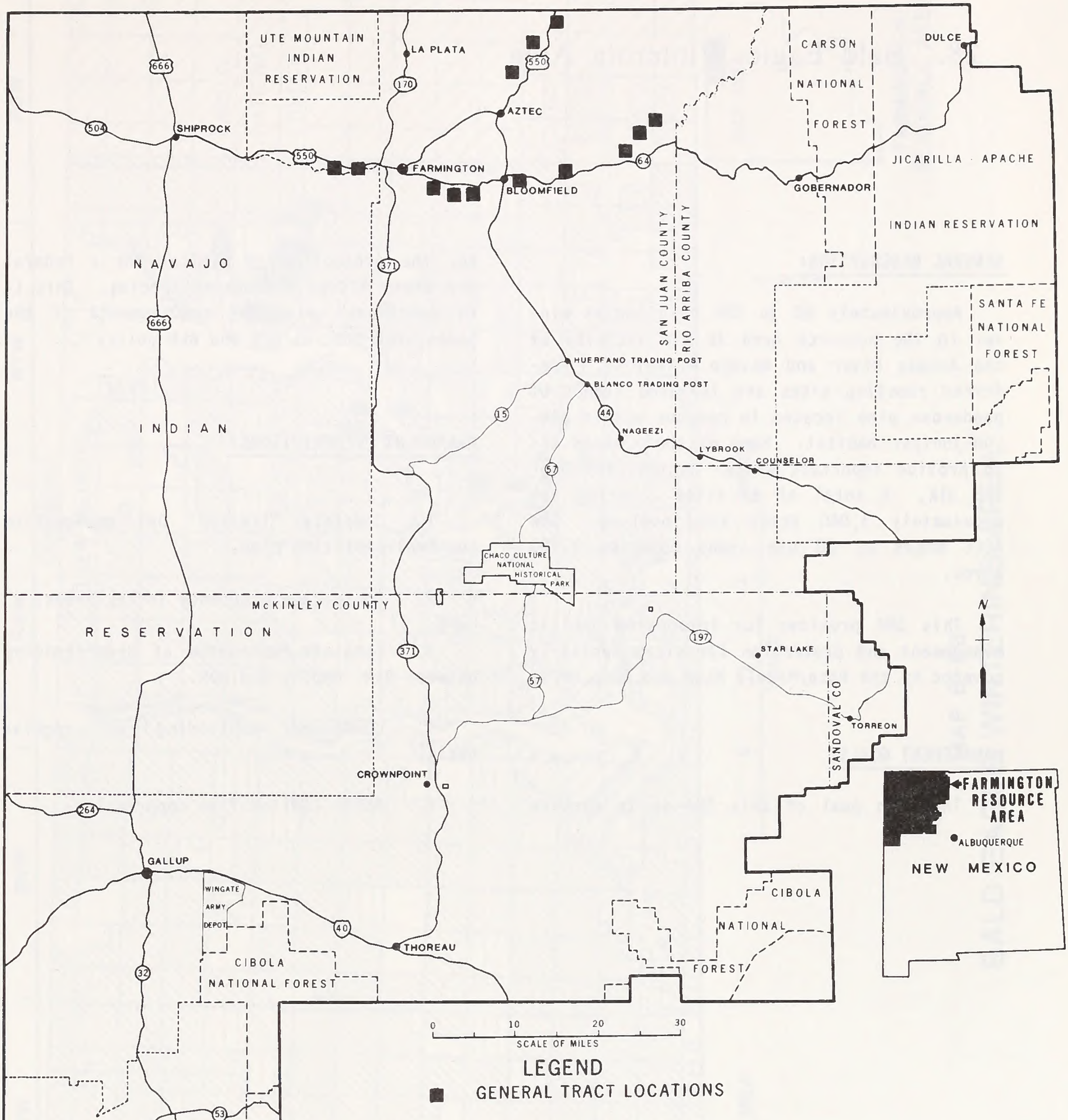
MANAGEMENT GOALS:

The main goals of this special management area are described in the San Juan Basin River Habitat Management Plan. In general the SMA would be designed to protect and rehabilitate the riparian and wetland habitats and, when compatible with wildlife, provide river access and recreation sites for the public.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. (a) Mineral withdrawal, (b) no surface occupancy for existing oil and gas leases.
3. Acquire necessary easements and non-BLM inholdings.
4. Develop cooperative agreement to formally authorize BLM management of Bureau of Reclamation withdrawn tracts.
5. No forest product sales.
6. Apply limited fire suppression.

FARMINGTON RESOURCE AREA



MAP B-27
RIVER TRACTS

28. Bald Eagle Wintering Area

GENERAL DESCRIPTION:

Approximately 80 to 100 bald eagles winter in the Resource Area in the vicinity of the Animas River and Navajo Reservoir. Preferred roosting sites are isolated stands of ponderosa pine located in canyons within pinyon-juniper habitat. Some of these areas also provide important winter habitat for deer and elk. A total of 22 sites covering approximately 3,840 acres are involved. The ACEC makes up 20 use areas covering 1,700 acres.

This SMA provides for integrated habitat management and protection for sites partially covered by the Rosa/Middle Mesa and Pump HMPs.

MANAGEMENT GOALS:

The main goal of this SMA is to provide for the protection of habitat for a federal and state listed endangered species. This is in compliance with the requirements of the Endangered Species Act and BLM policy.

MANAGMENT PRESCRIPTIONS:

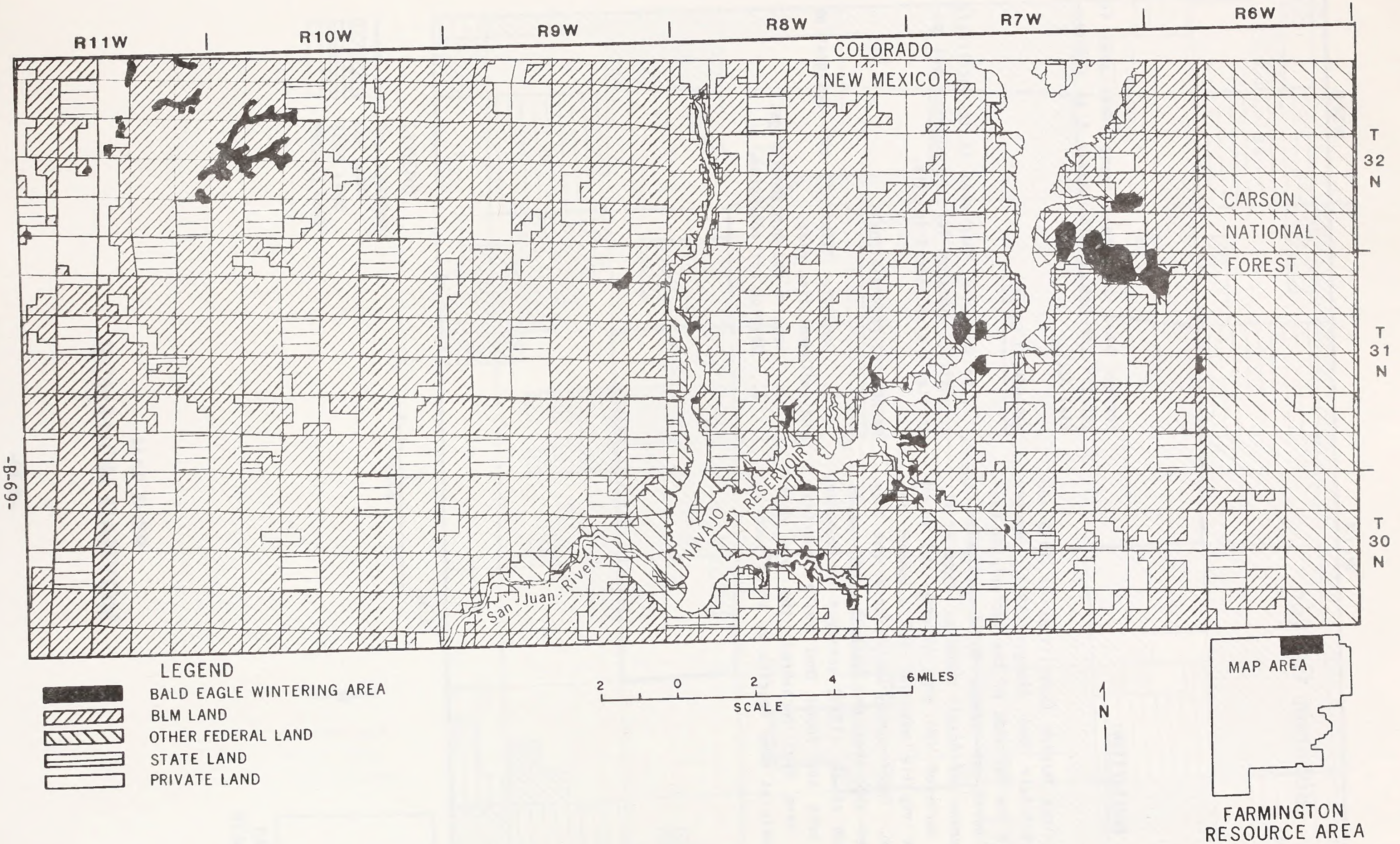
1. Complete "limited" ORV designation and implementation plan.

2. No surface occupancy in key areas.

3. Complete Memorandum of Understanding between BLM, NMDGF, and BOR.

4. Continued monitoring on regular basis.

5. Apply limited fire suppression.



MAP B-28

BALD EAGLE WINTERING AREA

29. Bohanon Canyon

GENERAL DESCRIPTION:

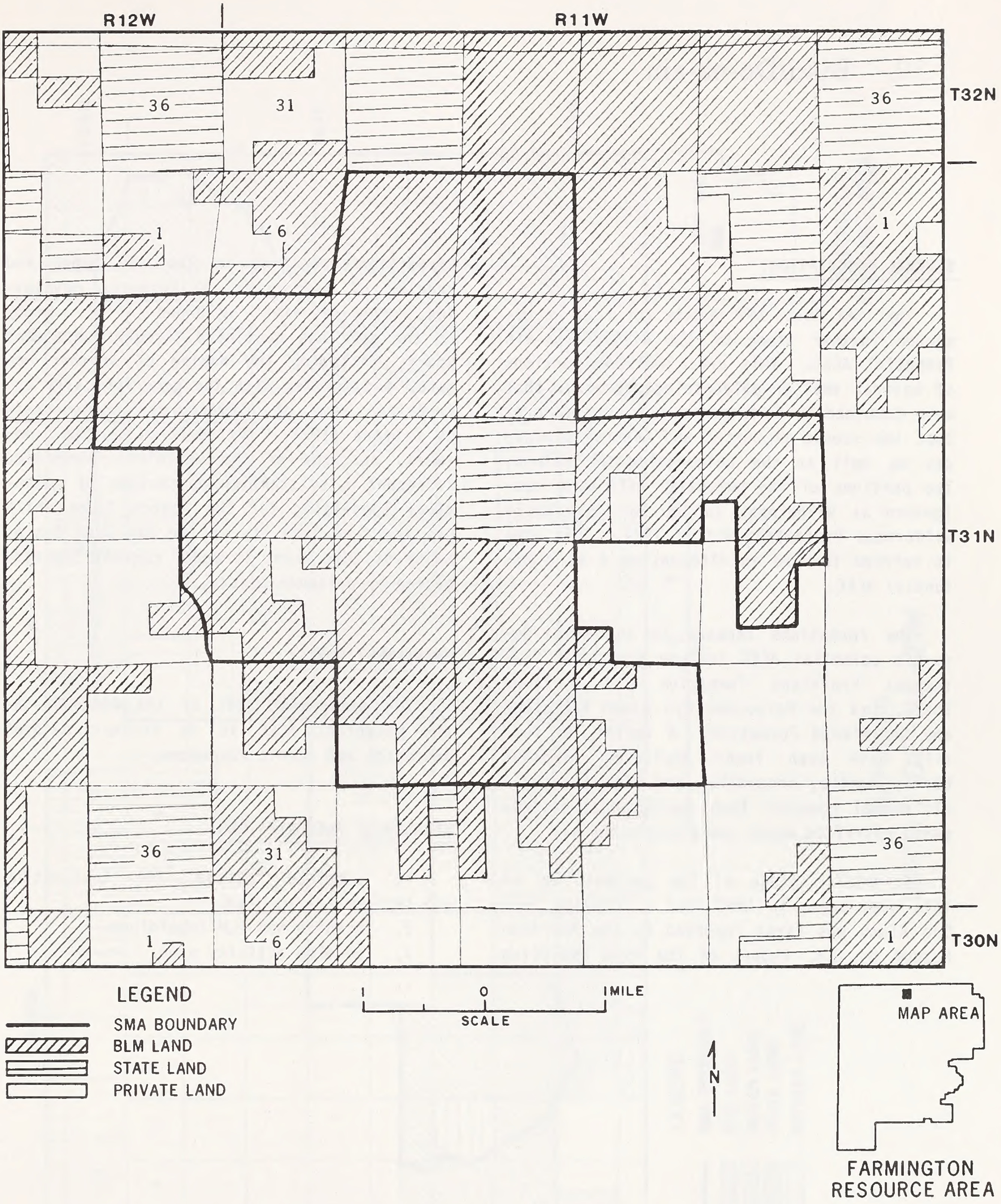
American Museum Expeditions in 1913 and 1916 (Sinclair and Granger 1914, Granger 1917) in the badlands of the Naciemiento Formation north of Aztec, N.M., collected a small number of fossil mammals. Kues et al. (1977) surveyed the area briefly and found abundant reptile material and a mammal jaw fragment. Their survey was cursory, but they indicated the area and vicinity held promise. Ash et al. (1979) surveyed the Bohanon Canyon area and found that while important fossils have been recovered, the area does not contain as many fossils as areas such as Torreon Wash or Kutz Canyon. This area is carried forward in Alternative A as a potential ACEC.

MANAGEMENT GOALS:

The goal for this area is to facilitate scientific research for the sparse, but potentially significant fossils.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Acquire non-BLM inholdings.
3. Develop activity plan.



MAP B-29

BOHANON CANYON

30. Bisti/De-na-zin

GENERAL DESCRIPTION:

The 1981 Chaco MFP Update for Coal recommended further study of the Bisti/De-na-zin Potential ACEC. This area included portions of several smaller paleontological areas that were combined to form one larger area to protect the scenic resources and natural processes as well as the paleontological values. Two portions of the potential ACEC were designated as Wilderness in the San Juan Basin Wilderness Protection Act of 1984. This area is carried forward in Alternative A as a potential ACEC.

The formations exposed in the Bisti/De-na-zin potential ACEC include the Upper Cretaceous Fruitland Formation and Kirtland Shale, and the Paleocene Ojo Alamo Sandstone and Nacimiento Formation. A variety of fossils have been found including dinosaur bones; turtle, crocodile, and lizard material; mammal remains; fish; pelecypods; gastropods; petrified wood; and plant material.

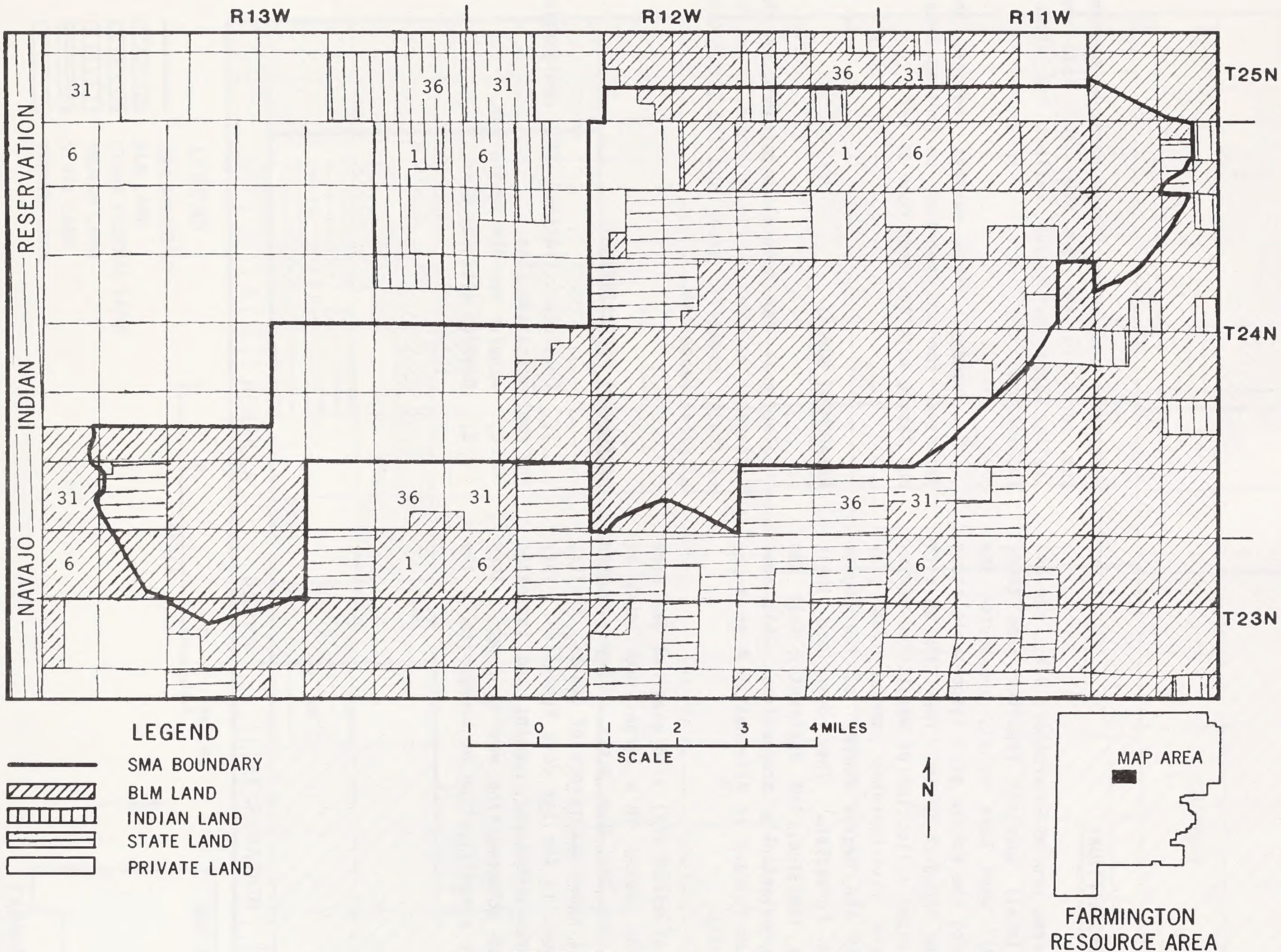
Scientific study of the paleontology of this area began in 1902 when a locality near Ojo Alamo was first reported to the American Museum by G.H. Pepper of the Hyde Exploring Expedition resulting in the new genus and species of hadrosaurs, Kritosaurus navajovius, being described by Brown (1910). Study of the area has continued through subsequent years, including the naming of another new genus and species with the geographically appropriate name of Alamosaurus sanjuanenesis by Gilmore (1921). In addition to the dinosaurs, outcrops of the Nacimiento Formation represent a substantial percentage of potentical localities for the Puerco fauna which has its type locality in the San Juan Basin. Study of this fauna is under current investigation by paleontologists.

MANAGEMENT GOALS:

The management goal of the Bisti/De-na-zin potential ACEC is to protect natural processes and scenic resources.

MANAGEMENT PRESCRIPTIONS:

1. Complete "closed" ORV designation and implementation plan.
2. Acquire non-BLM inholdings.
3. Develop activity plan.



MAP B-30

BISTI / DE-NA-ZIN

31. Gobernador and Cereza Canyon

GENERAL DESCRIPTION:

The area around Gobernador, N.M., had only one fossil specimen reported from there until 1977 when Kues et al. prospected the area during the course of a large-scale study within the San Juan Basin. They came up with a "fair-sized collection of Wasatchian vertebrates and invertebrates coming from clay shales of the Regina Member" of the Eocene San Jose Formation. They described their finds as isolated, but apparently felt the area was potentially productive. This area is carried forward in Alternative A as a potential ACEC.

Ash et al. (1979) also examined the area during the course of a large-scale study of part of the San Juan Basin. They reported the first known occurrence of leaves, fruits, and flowers in the San Jose Formation. They also found vertebrate remains and indicated that some screenwashing was in order. They suggested a modification of boundaries of the Gobernador and Cereza Canyon areas which were put forth in the San Juan MFP into one smaller area to better reflect the actual localities.

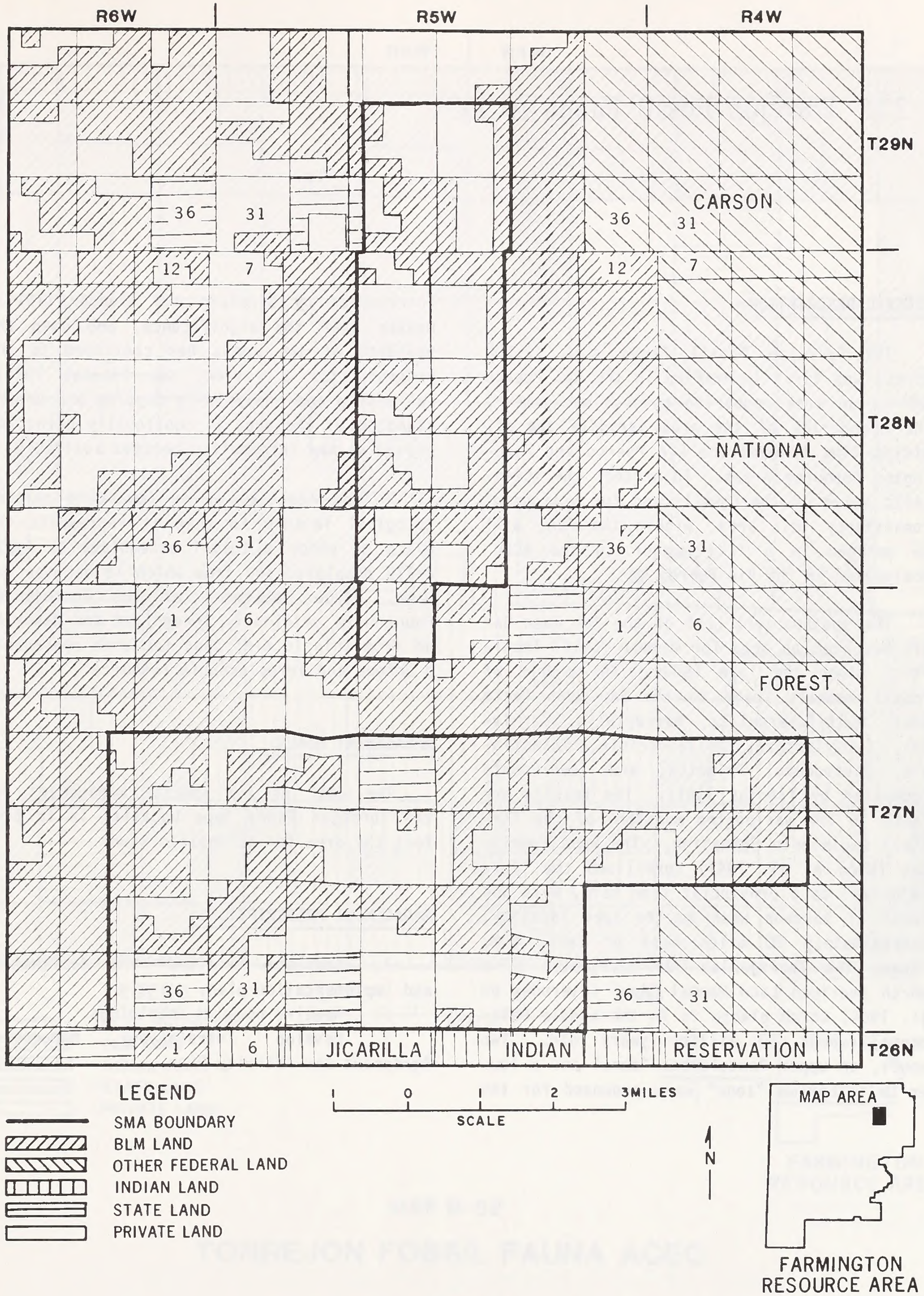
In summary, these surveys indicate the potential for an important collecting area, but little work has been done so far.

MANAGEMENT GOALS:

The goal for special management of the Gobernador and Cereza Canyon areas is to facilitate scientific study and the protection of paleo resources.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Acquire non-BLM inholdings.
3. Develop activity plan.



MAP B-31

GOBERNADOR AND CEREZA CANYON

32. Torrejon Fossil Fauna ACEC

GENERAL DESCRIPTION:

The Torrejon Fossil Fauna ACEC (2,900 acres) was first identified in the Rio Puerco RMP as an area requiring special management. The boundaries of the area straddle the dividing line between the Rio Puerco and Farmington Resource Areas. To protect the scientific value of the fossils and for management consistency this area, within the FRA, will be managed in a like manner to the ACEC designated in the Rio Puerco RMP.

The southeastern part of the San Juan Basin has been an area for mammal fossil localities since the late 1800s. The orders of fossil mammals found in the San Juan Basin are: Multituberculata, Marsupialia, Carnivora, Condylarthra, Deltatheridia, Insectivora, Pantodonta, Primates, and Taeniodonta (compiled by Tsentas 1981). The fossils are found in the variegated mudstone of the Tertiary Nacimiento Formation. The Wood Committee (Wood et al. 1941) formalized the "Torrejonian" as a provincial time term, with the heads of Torreon Wash as the type locality, approximately 20 miles west of Cuba, N.M. Later, the Torrejonian was designated as a North American Land Mammal "Age" (Evernden et al. 1964) which placed it in the middle Paleocene, about 60 million years old. Two zones, an upper Pantolumbda "zone" and a lower Deltatherium "zone" were proposed for the Torrejonian by Sinclair and Granger (1914). Debate over the significance, and even the validity of the zones has continued to the present (for a review, see Tsentas 1981). Collecting and analysis is ongoing and understanding of the area is continually being improved as new information becomes available.

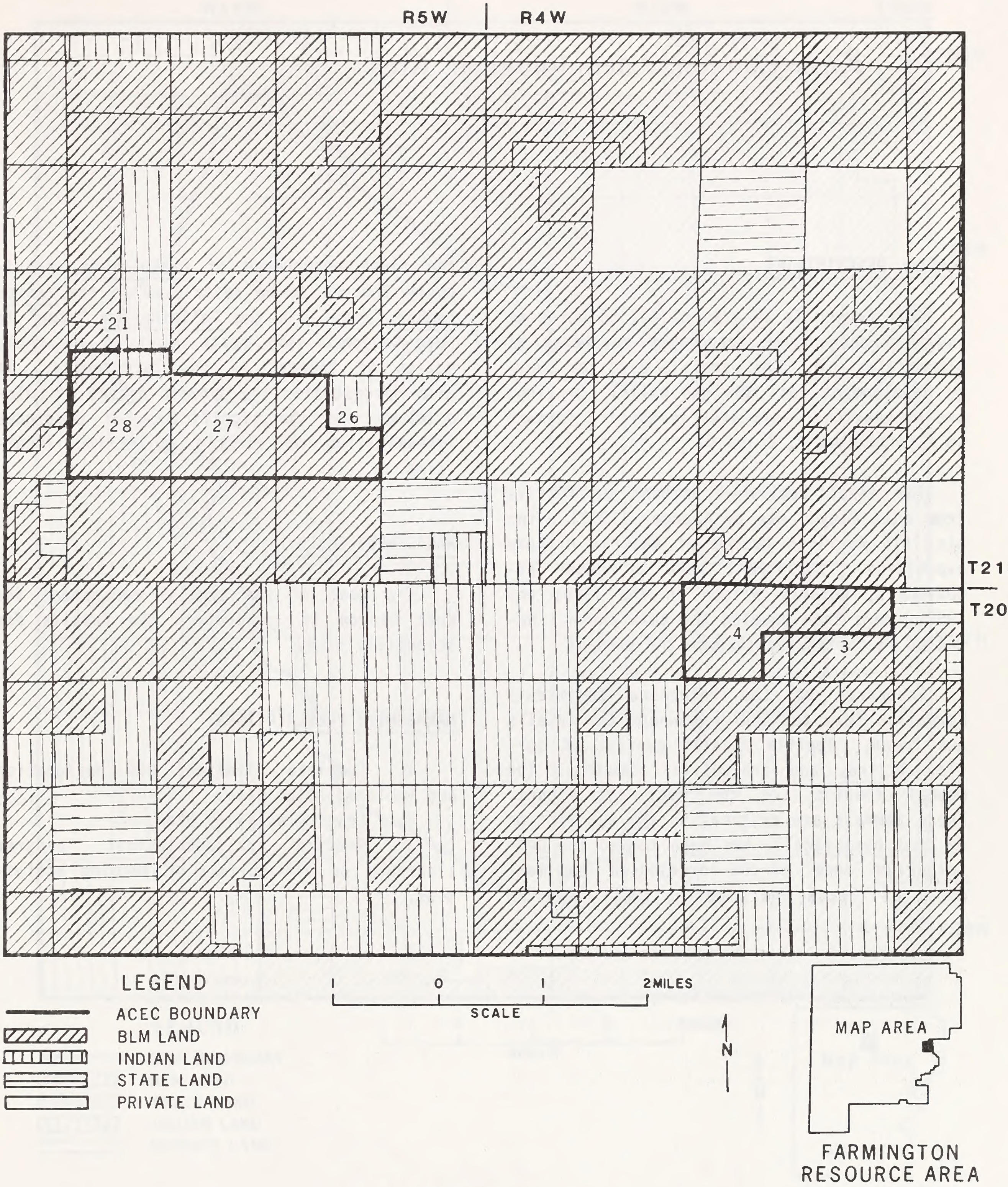
A type locality is an important paleontological feature in that it represents the place at which a fossil assemblage is typically displayed and from which it derives its name. Type specimens of the Torrejonian Fauna were originally recognized and described from this locale; thus the area represents a unique and irreplaceable resource.

MANAGEMENT GOALS:

The goal of the special management for the Torrejon Fauna Type Locality is to protect the area for scientific study.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Acquire non-BLM inholdings.
3. Develop Intra-agency Management Agreement and Activity Plan.



MAP B-32

TORREJON FOSSIL FAUNA ACEC

33. Kutz Canyon Paleontological Area

GENERAL DESCRIPTION:

Kutz Canyon is an area of 35,186 acres of badlands and canyon topography southeast of Bloomfield, N.M. This area is used for energy development (oil and gas wells), grazing, and recreation. This area is carried forward in Alternatives A, B and D.

The first published account of fossils from Kutz Canyon was by Granger (1917) after his 1916 American Museum of Natural History expedition. Subsequent work by other researchers, notably Wilson in the 1940s and 1950s, more than doubled the taxa known. Research is continuing through the present.

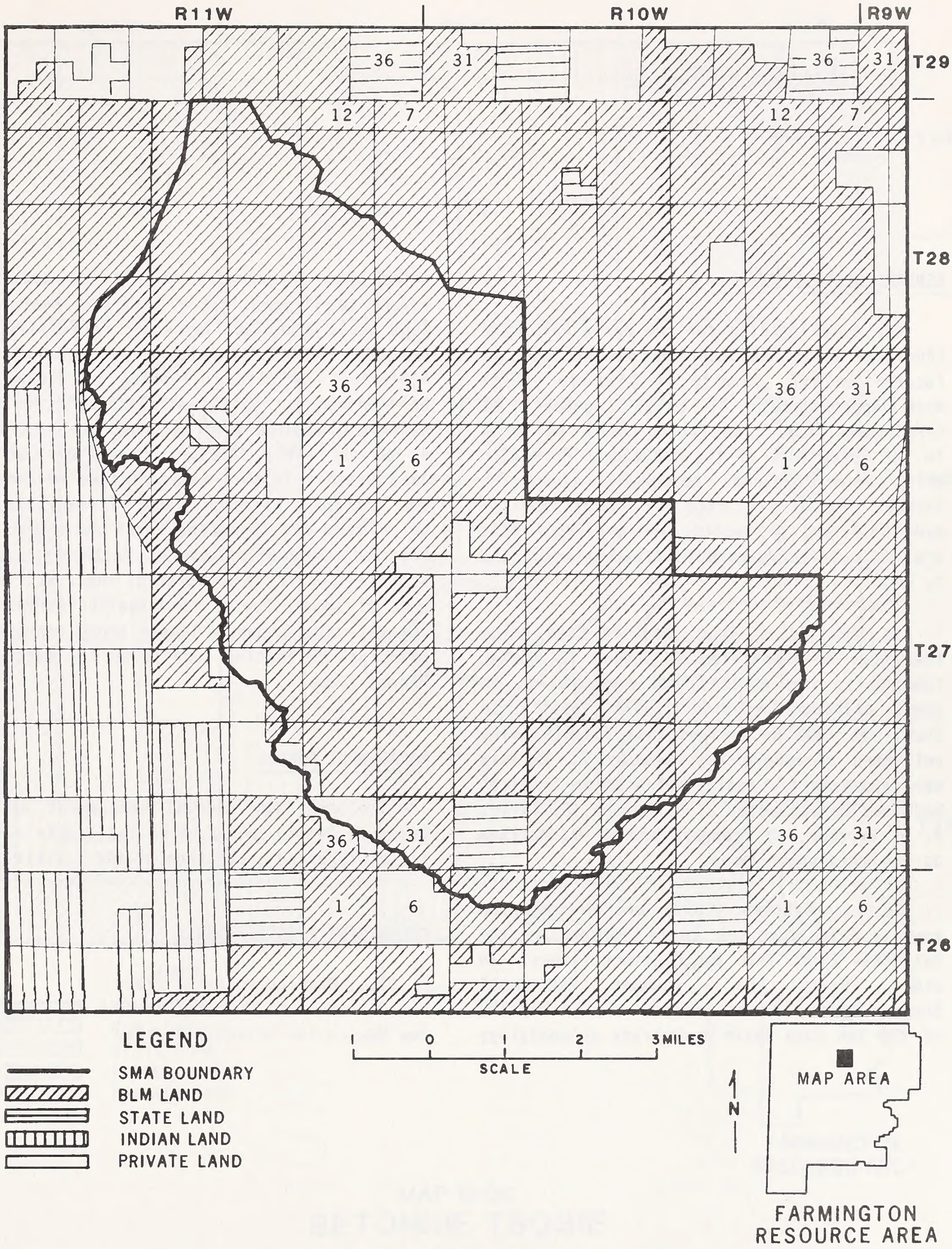
Exposures of the Paleocene Nacimiento Formation form the badlands where the fossils are found. Reptile fossils consist of turtle, lizard, and crocodilian remains. The mammal fossils are the most significant. These mammals are critical to the description of what historically has been termed the Deltatherium "zone" of the Torrejonian land mammal age. Lucas and O'Neill (1981) reported the first occurrence of Pantolambda, previously thought to be restricted to the Pantolambda "zone", in the Deltatherium "zone" in Kutz Canyon. This casts doubt on the whole notion of "zones" in the Torrejonian. It also demonstrates the dynamic nature of paleontology and the significance of continued investigation of classic collecting localities.

MANAGEMENT GOALS:

The goal of the special management for Kutz Canyon is to protect the fossils for scientific study.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Develop activity plan.
3. Require paleontological program clearance on all surface disturbing activities.



MAP B-33

KUTZ CANYON PALEONTOLOGICAL AREA

34. Betonnie Tsosie

GENERAL DESCRIPTION:

The type locality for the early Paleocene (Puercan) North American land mammal "age" is located in the vicinity of Betonnie Tsosie Wash approximately 40 miles southeast of Farmington, N.M. The Puerco fauna is found in the lower part of the Nacimiento Formation which forms badlands topography along the washes. The area is used for energy development (oil and gas wells) and grazing. This area is carried forward in Alternatives B and D.

In 1874 E. D. Cope observed beds below the rocks he identified as Eocene in age at Cuba Mesa. He applied the name Puerco to them, although he didn't find fossils in them. In 1882 he decided that fossils being collected elsewhere for him by D. Baldwin were equivalent. Additional work on "Puerco" beds was conducted by H. F. Osborn, C. Earle, J. L. Wortman, W. Granger, and W. D. Matthew during subsequent years.

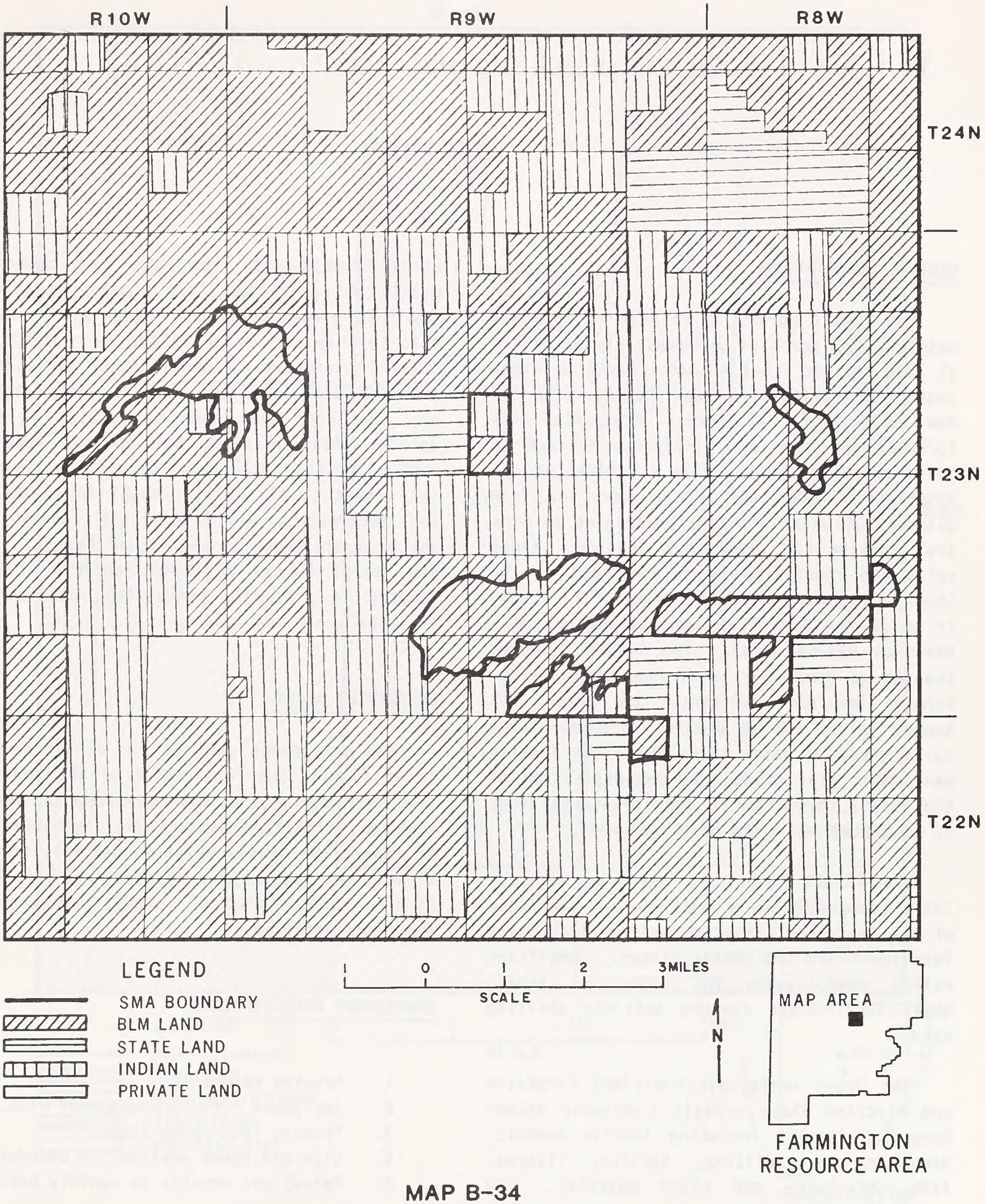
It was Matthew (1897) who divided the mammals from what was to be defined as the Paleocene Epoch into two distinct faunas: an older "Puerco" and a younger "Torrejon." Simpson (1981) in his review of the history of the San Juan Basin vertebrate paleontology noted that "Apparently it did not occur to anyone until much later that the Puerco of Cope has a type locality where no fossils had yet been found and which might prove to be equivalent to either 'Puerco' or 'Torrejon' of Matthew, or both, or neither." In 1937 Matthew's studies were posthumously published on the early Tertiary faunas of the San Juan Basin. In this manuscript he delineated the Puerco, Torrejon, and Tiffany faunas which form the Paleocene Epoch such that the rest of the world adopted Matthew's usage. Simpson (1959) demonstrated that at least some of Cope's Puerco is actually Torrejonian in age. The Betonnie Tsosie group represents principal collecting localities for Matthew's Puerco fauna.

MANAGEMENT GOALS:

The goal for special management of the Betonnie Tsosie group is to facilitate scientific study and protection of the fossils .

MANAGEMENT PRESCRIPTIONS:

1. Develop activity plan.
2. Pursue transfer of SMA to state of New Mexico for scientific uses.



MAP B-34
BETONNIE TSOSIE

35. Fossil Forest Research Natural Area

GENERAL DESCRIPTION:

The Fossil Forest is an area of approximately 2,720 acres of BLM-administered federal land located about 40 miles south of Farmington in northwestern New Mexico. In the San Juan Basin Wilderness Protection Act (SJBWPA) the area was withdrawn, subject to valid existing rights, from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and geothermal leasing. Final rules and regulations were published in the Federal Register effective November 17, 1985, in which the Fossil Forest was designated a Research Natural Area. The SJBWPA directed the BLM to conduct a long-range study to determine how best to manage the area's resource values and to present recommendations to Congress no later than 1992. The interim management plan guides the administration of the Fossil Forest until the long-range study is completed and acted on by Congress.

The Fossil Forest is dominated by badlands topography where mudstone and sandstone of the Fruitland Formation and Kirtland Shale form low hills and gentle slopes. Stabilized eolian sand covers the high flat areas. Small local areas feature actively shifting sand.

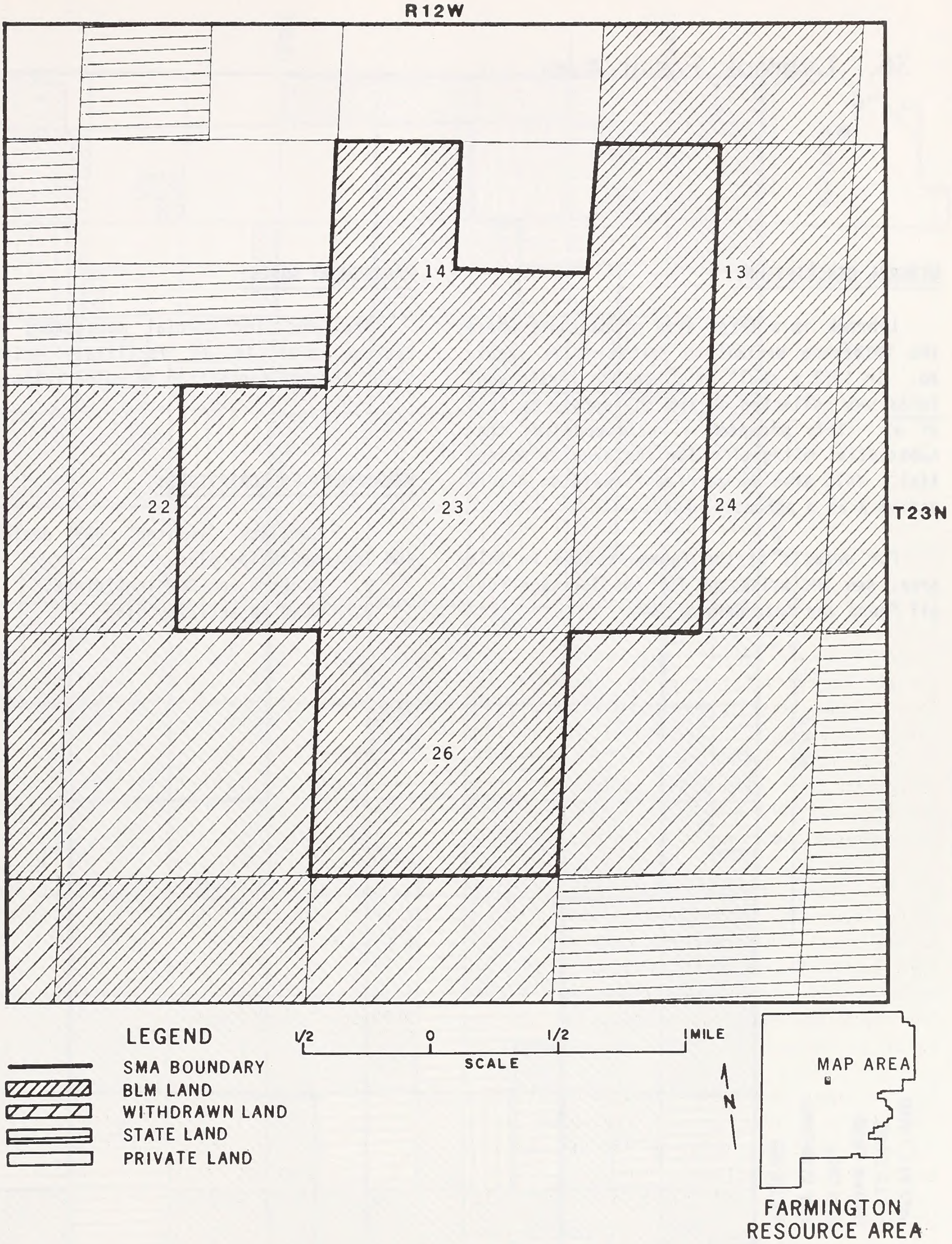
The Upper Cretaceous Fruitland Formation and Kirtland Shale contain a diverse assemblage of fossils including therian mammals, dinosaurs, crocodilians, turtles, lizards, fish, bivalves, and plant material. The Fossil Forest gets its name from approximately 40 petrified tree stumps that are found in growth position. Study of the fossils in this area began in the early 1920s by Charles Sternberg, a professional collector, although some work may have occurred earlier. The area was known to science in the decades that followed, but did not receive much attention until a paleontological inventory (Kues et al. 1977) brought to attention the interesting and significant fossils of the area now known as the Fossil Forest. The New Mexico Bureau of Mines and Mineral Resources is presently conducting research in the area.

MANAGEMENT GOALS:

The management goal of the Fossil Forest is to fulfill the requirement of the law and take such measures as are necessary to ensure that no activities disturb the land surface or impair the area's existing natural, educational, and scientific research values, including paleontological study, excavation, and interpretation.

MANAGEMENT PRESCRIPTIONS:

1. Acquire easement.
2. Implement Interim Management Plan.
3. Prepare long-range study.
4. Sign and fence portions of boundary.
5. Patrol and monitor on monthly basis.



MAP B-35

FOSSIL FOREST RESEARCH NATURAL AREA

36. Lybrook Fossil Area

GENERAL DESCRIPTION:

Lybrook is a large area of badlands where the Paleocene Nacimiento Formation is exposed. In 1977 a skull of Claenodon (Arctocyon) ferox was collected during the survey by Kues et al. This prompted a recommendation that substantial mitigation for the area is essential. This area is carried forward in Alternative A as a potential ACEC.

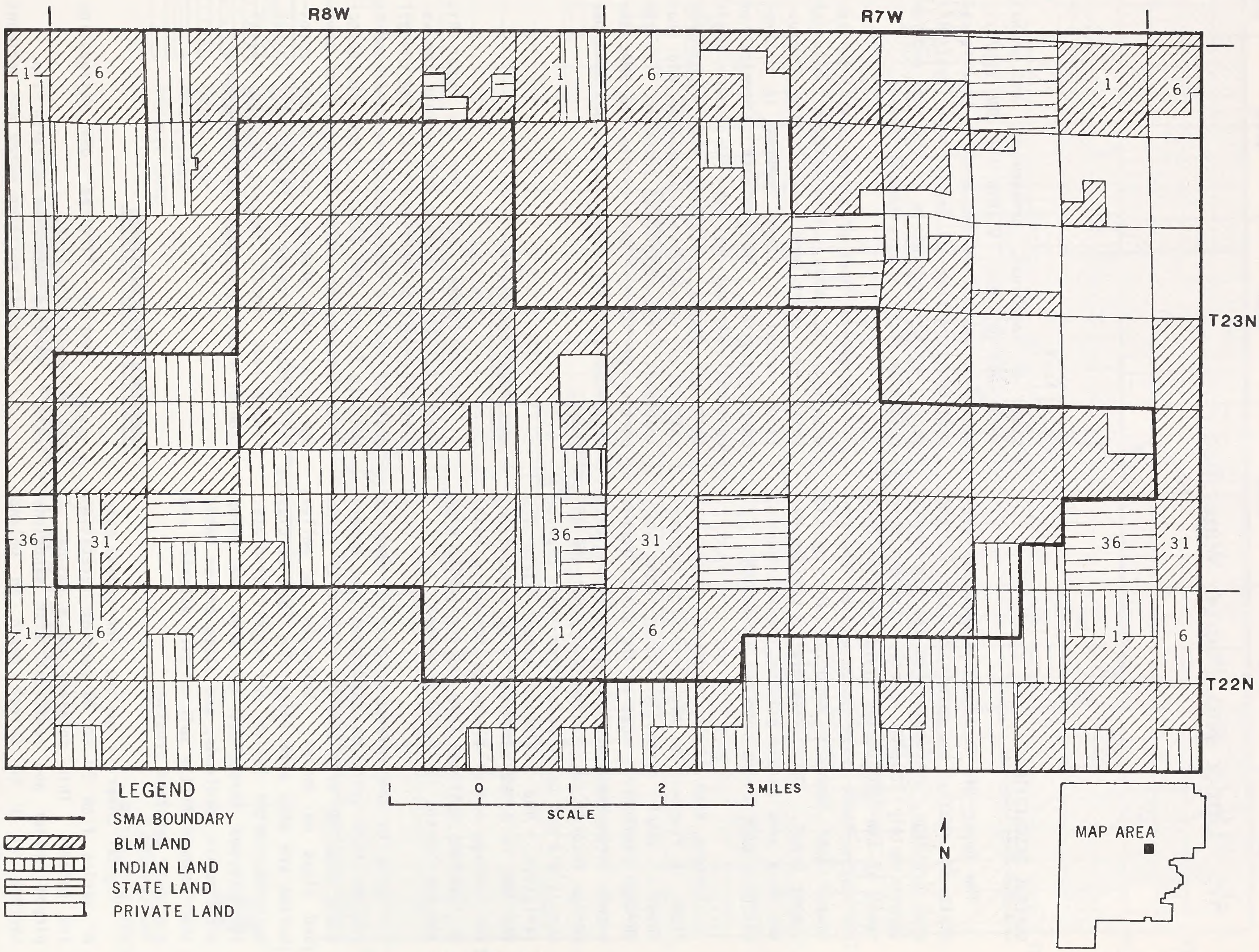
For details of the fauna located in this area, see the write-ups for the Torrejon Fossil Fauna and Kutz Canyon SMAs.

MANAGEMENT GOALS:

The goal for special management of the Lybrook area is to facilitate scientific study through protection of paleo resources.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Acquire non-BLM inholdings.
3. Develop activity plan.



MAP B-36
LYBROOK FOSSIL AREA

37. Upper Rio Puerco Watershed

GENERAL DESCRIPTION:

The Upper Rio Puerco Watershed SMA consists of nearly two-thirds of the Torreon Wash drainage, a tributary to the Rio Puerco (approximately 120,000 acres). Torreon Wash heads at the Continental Divide west of Cuba and joins Chico Wash just outside the Resource Area boundary north of the Ignacio Chavez Grant. Chico Wash drains the San Mateo Mesa area before joining the Rio Puerco, which in turn drains into the Rio Grande.

Torreon Wash is an ephemeral stream and flows in response to high-intensity thundershowers which generally occur from July through September. Most of the annual runoff occurs during this period. There are no discharge records for Torreon Wash, but the annual yield can be computed from basin characteristics. The estimated annual yield for the SMA is 2,080 acre-feet. By comparison, the average annual discharge for Chico Wash, as recorded upstream from the confluence with the Rio Puerco, is 15,200 acre-feet.

Soils in the uplands consist of deep to shallow fine sands on sandstones and moderately deep to very shallow silty clay loams and clays on shales. Soils in the valley bottom are deep with silty clay loam to clay textures, often saline and highly erodible. Interspersed throughout the area are steep escarpments, badlands, and steep broken lands that contain little soil or soil material and are under constant erosion.

Vegetal cover is sparse. The ground cover varies from 20 to 30 percent vegetation and better. This consists of a canopy of pinyon-juniper and sagebrush with sandstone bedrock at 0 to 8-inch depth in upland areas. The narrow valley floors support a stand of sagebrush, greasewood, and annual forbs and grasses. Within the SMA approximately 15 percent of the area is in critical erosion condition (1.0-3.0 acre feet/mi^2/year), and 34 percent is in moderate erosion condition (0.5-1.0 acre-feet/mi^2/year).

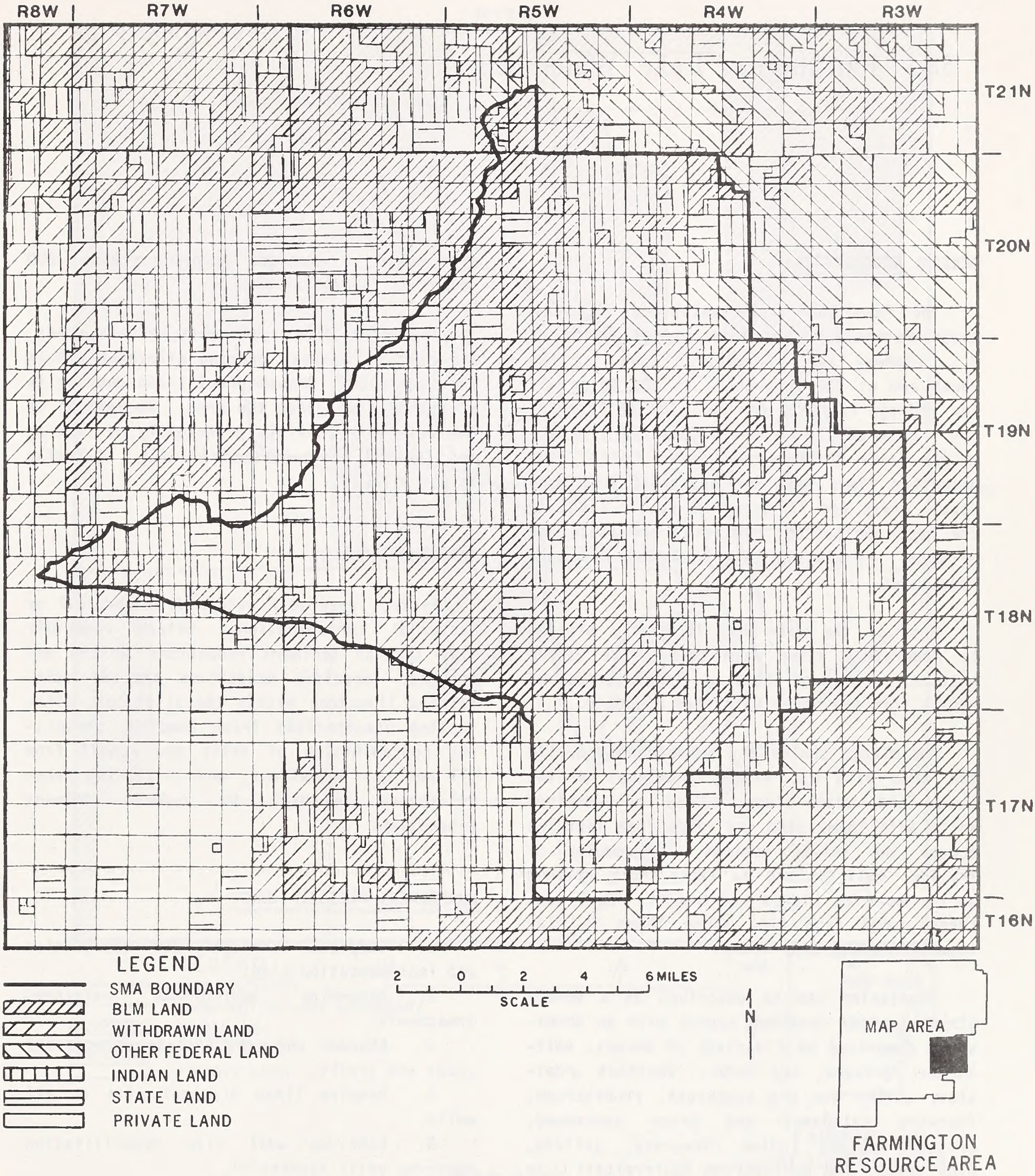
The general lack of ground cover, the erodibility of deep, fine-textured alluvial soils, and short-term precipitation fluctuations result in rapid changes in channel characteristics. Torreon Wash is typical of ephemeral streams in the Rio Puerco Basin that are deeply entrenched with a drainage pattern of straight-walled gullies and that transport large amounts of sediment. For the portion of Torreon Wash within the SMA, the extracted sediment yield is 413,039 tons per year.

MANAGEMENT GOALS:

The management goal for the Upper Rio Puerco SMA is to protect and improve the watershed condition consistent with the overall goals of the Rio Puerco Basin as described in the Rio Puerco RMP (1985). Specific objectives include increasing the amount of acreage in a stable erosion condition and improving vegetative cover to reduce soil losses, reduce peak runoff, improve on-site utilization of water, and reduce sediment yield.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Develop Watershed Activity Plan.
3. Maintain existing water and sediment control structures.



MAP B-37
UPPER RIO PUERCO WATERSHED

38. Farmington Lake Watershed

GENERAL DESCRIPTION:

The Farmington Lake Watershed lies between Farmington and Aztec, just north of U.S. Highway 550. Farmington Lake, at the south end of the watershed, is the major water storage facility for the city of Farmington. Most of the water is supplied from the Animas River through the Farmers Ditch. The watershed flows east and southeast from Hood Mesa. There are 777 acres of public lands in the upper watershed; 882 acres are state and private. Farmington Lake occupies 213 surface acres.

Most of the watershed is gently sloping to moderately steep with broad flat valley bottoms. On Hood Mesa a long series of breaks form the upper watershed boundary.

Nacimiento shales and sandstones underlie the area with Ojo Alamo sandstones on the south and west sides. Deep well-drained soils with loamy sand and sandy loam textures occupy the valley bottoms. A complex of shallow, well-drained to excessively drained soils occur on ridges and breaks. Soil textures range from fine sandy loams to clay loams and silty clay loams.

Vegetation can be described as a scrub/pinyon-juniper savannah aspect with an understory comprised of a variety of shrubs, half-shrubs, grasses, and forbs. Dominant understory shrubs are big sagebrush, rabbitbrush, fourwing saltbush, and broom snakeweed. Grasses include Indian ricegrass, galleta, blue grama, and bottlebrush squirreltail. In a year with favorable growth conditions, the site would be expected to produce about 800 pounds of forage per acre.

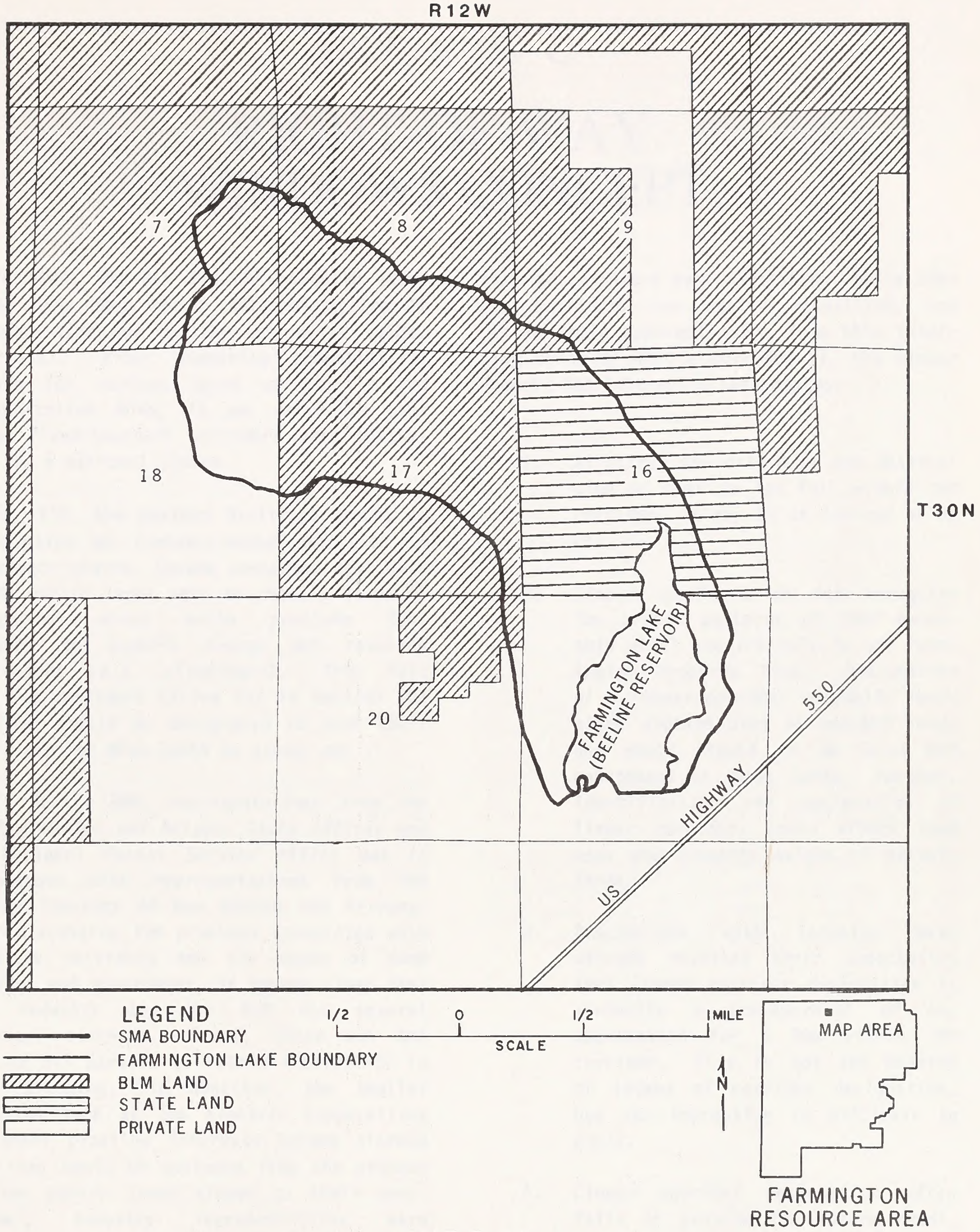
There are eight gas wells, access roads, and part of a sheep grazing allotment within the watershed. Unauthorized trash dumping is a problem throughout the area. Recreation on the reservoir consists principally of fishing and limited non-motorized boating. Swimming is not allowed.

MANAGEMENT GOALS:

Protect reservoir waters from chemical or bacterial contamination. Extend reservoir life through sediment reductions on the watershed. Specific objectives include maintaining livestock within the allotment, eliminating unauthorized trash dumping, preventing contamination of soils and runoff from oil and gas operations, and initiating rehabilitation measures to reduce sediment production.

MANAGEMENT PRESCRIPTIONS:

1. Complete "limited" ORV designation and implementation plan.
2. Determine appropriate watershed treatments.
3. Abandon and rehabilitate unnecessary roads and trails.
4. Require lined disposal pits on all wells.
5. Continue well site rehabilitation measures until successful.
6. Install livestock fencing.



MAP B-38
FARMINGTON LAKE WATERSHED

APPENDIX C

RIGHT-OF-WAY WINDOWS CONCEPT

In 1974, the BLM did an extensive study called "The Need For A National System Of Transportation and Utility Corridors" (USDI, BLM 1975). After examining compatibility factors for various types of utility and transportation ROWs, it was concluded that narrow fixed-boundary corridors were unfeasible for a national system.

In 1979, the Western Utilities Group, an organization of investor-owned utilities in 11 western states, became concerned that much of the public lands were to receive forms of designation which would preclude ROWs intended to support energy and resource development (e.g. wilderness). They felt that the corridors called for in Section 503 of FLPMA should be designated so that their future use for ROWs could be preserved.

In April 1980, representatives from the BLM New Mexico and Arizona State offices and the Regional Forest Service office met in Albuquerque with representatives from the utility industry of New Mexico and Arizona. After discussing the problems associated with joint-use corridors and the needs of both industry and government, it became clear that both industry and the BLM had several important concerns. First, there was the need of all parties to retain flexibility in their planning. In addition, the smaller utilities such as the electric cooperatives and small pipeline interests became alarmed that they would be excluded from the process and the public lands closed to their uses. Further, industry representatives were extremely interested in protecting vital window areas, (e.g. constraining areas such as topography, land status, etc., which were essential to routing of the utility).

In the process of developing an approach to ROW planning, the conventional linear concept of corridors was undertaken. While linear corridors are easily visualized, and derive their apparent value from this intuitive sense of what a corridor is, the linear concept has inherent disadvantages:

1. If either the origin or the destination or both do not fall within the corridor, it may be of limited or no use.

2. Linear corridors do not recognize the broken patterns of land ownership which are the rule in the Farmington Resource Area. Designation of a linear corridor on public lands might dictate uses on non-BLM lands and would result in de facto BLM management of these lands. Further, identification and designation of linear corridors could affect land uses and property values of private lands.

3. Discussions with industry have already revealed their expectation that linear corridor designation is virtually a pre-approval of any application for a ROW within the corridor. This is not the meaning or intent of corridor designation, but the impression is difficult to avoid.

4. Linear corridor designation often fails to provide for future needs, since sources and markets are constantly changing.

5. The continuity of linear corridor designation does not correspond to the "checkerboard" pattern of land ownership which is common in the

southern two-thirds of the Farmington Resource Area. If a corridor is designated into or across a non-condemnable land status such as Tribal Trust lands, utility companies would not be able to condemn that parcel if negotiations should fail.

As a result of the difficulties of the linear concept, the RMP team utilized a window approach to corridor planning which would satisfy both industry and Bureau needs and concerns. The idea behind the window concept is to identify strategic areas which are needed for right-of-way locations. Stipulations or management prescriptions are then designed to eliminate actions (such as buildings, airstrips, or surface mining) which would conflict with rights-of-way inside those windows.

Advantages to the window approach include the following:

1. Critical access (windows) would be protected; sensitive areas would be identified for ROW avoidance (these are primarily Special Management Areas - see Appendix B); performance criteria would be known to industry and incorporated into their long-range planning.

2. Use of windows and avoidance of sensitive areas would limit proliferation of ROWs in ways that make sense to the public and to industry.

3. Reasonable flexibility would be retained; industry could design its own routes in response to source-to-market needs.

4. Window designation has less potential of creating a presumption of use over non-BLM administered lands.

5. Cost and time of processing ROW applications would be reduced.

6. Industry would be provided with early identification of sensitive areas, as well as requirements relating to their applications.

7. This approach achieves better consideration of multiple-use factors while reducing environmental impacts.

8. This approach would provide for identification and consideration of industry's needs regardless of the size of the company or project.

It is important to note that lands which are not designated as unsuitable for right-of-way purposes are to be considered as open for rights-of-way across public lands and will receive case-by-case environmental analysis to ensure compliance with the National Environmental Policy Act.

APPENDIX D

LAND OWNERSHIP ADJUSTMENTS IN THE RETENTION ZONE

Since the overall theme of the retention zone is to retain federal surface under BLM administration for the general public, parcels within that zone which have potential for sale must be specifically identified. The following is a list of scattered and isolated parcels of federal land within the retention zone which are difficult or uneconomical for the BLM to manage. These parcels are available for disposal through the methods listed in the Continuing Management Guidance section in Chapter 1 of this RMP.

It should be noted that federal acreage within the retention zone should not decrease significantly due to disposal of these parcels. In fact, due to the opportunity for land exchanges between the exchange zone and retention zone, federal acreage within the retention zone should increase over the life of this plan. If, after further examination, resources of national, state or regional significance are found upon any of these parcels, and the possible adverse affects of disposal cannot be mitigated at a reasonable cost, the parcel may be retained under BLM administration.

LEGAL DESCRIPTION	APPROX.ACREAGE
T.32N., R.10W., N.M.P.M.	
Sec. 32: Lot 1 (NE/4SE/4)	40.84 A.
T.32N., R.11W., N.M.P.M.	
Sec. 10: Lot 1 (NE/4SE/4)	43.83 A.
Sec. 19: SE/4NW/4	40.0 A.
Sec. 20: NW/4SW/4	40.0 A.
T.32N., R.12W., N.M.P.M.	
Sec. 13: SE/4SE/4	40.0 A.
Sec. 28: E/2NE/4, NE/4SE/4	120.0 A.
Sec. 35: S/2NE/4	80.0 A.
T.32N., R.13W., N.M.P.M.	
Sec. 35: E/2SW/4	80.0 A.
T.31N., R.10W., N.M.P.M.	
Sec. 4: Lot 5 (SW/4SW/4)	38.64 A.
T.31N., R.11W., N.M.P.M.	
Sec. 13: NE/4NE/4	40.0 A.
Sec. 35: S/2SE4, NE/4SE/4	120.0 A.
T.31N., R.12W., N.M.P.M.	
Sec. 1: Lots 6 and 7 (N/2SW/4)	72.89 A.
Sec. 25: N/2NW/4	80.0 A.

LEGAL DESCRIPTION	APPROX.ACREAGE
T.30N., R.11W., N.M.P.M.	
Sec. 2: Lot 5 (NW/4NE/4)	39.67 A.
Sec. 10: Lot 2 (SW/4SE/4)	78.04 A.
Sec. 15: Lots 5, 6, 7 (W/2SW/4, SE/4SW/4)	123.42 A.
T.30N., R.12W., N.M.P.M.	
Sec. 1: Lots 5, 6, 7, 8 (SW/4NE/4, W/2SE/4, SE/4SE/4)	153.99 A.
Sec. 15: Lots 1 and 2 (W/2NW/4)	80.45 A.
Sec. 19: SW/4SW/4NE/4	10.0 A.
Sec. 20: Lots 12, 14, 15, 17	39.66 A.
T.30N., R.13W., N.M.P.M.	
Sec. 20: NE/4NW/4, SW/4NE/4	80.0 A.
Sec. 26: NW/4SE/4SE/4SW/4, SW/4SW/4SE/4SW/4, S/2SW/4SW/4SE/4, NW/4SW/4SW/4SE/4	12.5 A.
Sec. 27: NW/4NW/4SE/4	10.0 A.
Sec. 28: W/2SW/4	80.0 A.
Sec. 29: W/2NE/4	80.0 A.
Sec. 32: E/2NE/4	80.0 A.
Sec. 33: N/2	320.0 A.
Sec. 34: NE/4NW/4	40.0 A.
T.30N., R.15W., N.M.P.M.	
Sec. 1: N/2N/2	160.0 A.
Sec. 17: SW/4SW/4	40.0 A.
Sec. 18: SE/4SE/4	40.0 A.
Sec. 19: NE/4NE/4, N/2SE/4NE/4, N/2S/2SE/4NE/4	70.0 A.
Sec. 20: NW/4NW/4, N/2SW/4SW/4NW/4, SE/4SW/4NW/4, N/2SW/4NW/4	75.0 A.
T.30N., R.16W., N.M.P.M.	
Sec. 2: Lots 3 and 4 (N/2NW/4), S/2NW/4	157.84 A.
T.29N., R.9W., N.M.P.M.	
Sec. 30: Lot 6 (W/2SW/4NW/4)	10.47 A.
T.29N., R.11W., N.M.P.M.	
Sec. 6: NW/4	137.8 A.
Sec. 13: NE/4SW/4	40.0 A.
Sec. 15: SW/4NW/4	40.0 A.
Sec. 27: S/2NW/4SW/4SW/4, W/2SE/4SW/4SW/4	10.0 A.
Sec. 28: SE/4SW/4, SW/4SE/4	80.0 A.
Sec. 33: N/2NW/4NE/4NE/4	5.0 A.
T.29N., R.12W., N.M.P.M.	
Sec. 5: NE/4NE/4SW/4	10.0 A.
Sec. 17: NE/4NE/4SW/4	10.0 A.
Sec. 19: S/2SE/4NE/4SE/4, SW/4SE/4NE/4	15.0 A.
Sec. 20: NE/4NE/4SW/4	10.0 A.
Sec. 21: Lots 10, 11, 12	55.47 A.
Sec. 26: Lot 1	19.96 A.

LEGAL DESCRIPTION	APPROX.ACREAGE
Sec. 27: N/2N/2NE/4, SE/4NW/4NE/4, SW/4NE/4NE/4, E/2SE/4NE/4NE/4, E/2SW/4NW/4NE/4	70.0 A.
Sec. 28: Lot 2	6.2 A.
T.29N., R.13W., N.M.P.M.	
Sec. 4: SW/4NW/4NE/4	10.0 A.
Sec. 5: Lot 6, SE/4NE/4SW/4	19.98 A.
Sec. 6: Lots 9, 13, W/2SW/4SE/4, S/2SE/4SW/4SE/4, SE/4SE/4	79.95 A.
Sec. 7: Lot 1, NW/4NW/4NE/4, W/2SW/4NW/4NE/4	19.64 A.
T.27N., R.9W., N.M.P.M.	
Sec. 25: SE/4	160.0 A.
T.26N., R.7W., N.M.P.M.	
Sec. 1: N/2NW/4	80.0 A.
Sec. 15: W/2SW/4	80.0 A.
T.25N., R.9W., N.M.P.M.	
Sec. 26: NW/4SE/4	40.0 A.
Sec. 35: SW/4	160.0 A.
T.24N., R.6W., N.M.P.M.	
Sec. 1: Lots 1, 2, 3, 4 (N/2N/2N/2)	45.0 A.
T.23N., R.7W., N.M.P.M.	
Sec. 12: Lots 1, 2, 3 (NE/4SW/4, S/2SW/4)	112.70 A.
Sec. 14: S/2S/2	160.0 A.
TOTAL	4093.94 Acres

APPENDIX E

IMPLEMENTATION OF ORV DESIGNATIONS

OVERVIEW

The purpose of this appendix is to provide general information about Bureau of Land Management policy and procedures for off-road vehicle (ORV) designations. BLM Manuals 8341 and 8342 contain a more complete discussion.

OBJECTIVES

All public lands must be designated as "open," "limited," or "closed" to motorized vehicle use to meet public demand or needs, to protect resources and the safety of public land users, and to minimize conflicts among the various public land users and adjacent land owners. Additionally, existing ORV designations are evaluated and revised, if necessary, whenever existing Management Framework Plans (MFPs) are amended or when Resource Management Plans (RMPs) are prepared, revised, or amended.

POLICY

ORV designations are completed as an integral part of the normal BLM planning system unless problems or conflicts preclude adhering to the planning schedules.

ORV designation allocations are not contingent on the BLM land use planning system.

Notices of ORV designations are published in the Federal Register within one year after completion of decisions allocating ORV use.

Designations apply to all motorized vehicles as defined by 43 CFR 8340.0-5(a) regardless of how the vehicles are being used. Only those vehicles excluded from that definition are allowed in closed areas or limited areas where use is prohibited by designation order. Necessary non-emergency use associated with BLM licenses, leases, permits, or sales may be authorized as an exclusion from that definition (see 43 CFR 8340.0-5(a) (3)) only if feasible alternatives have been exhausted and the use is compatible with established resource management objectives. Reasonable restrictions on the types of vehicles, time of use, routes, or amount of use may be required in the authorization. Requests for mineral exploration or development access under the 1872 mining law are allowed but are subject to 43 CFR 3802 and 3809.

"Open" designations are used for intensive ORV use areas where there are no special restrictions or areas where no compelling resource protection needs, user conflicts, or public safety issues exist that warrant limiting cross-country travel.

The "limited" designation is used where vehicular use must be restricted to meet specific resource management objectives. Examples of limitations include: number or types of vehicles, time or season of use, permitted or licensed use only, use limited to existing roads and trails, use limited to designated roads and trails, or other limitations necessary to meet resource management objectives (including certain competitive or intensive use areas which have special limitations).

Areas or trails are designated "closed" if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce user conflicts.

Brochures (with maps) and other public information and educational tools (such as news releases, articles, talks to groups, environmental and resource education, etc.) inform users of opportunities and restrictions; on-site placement of signs are used to supplement these tools. Signs should be restricted to marking specific problem areas and major entry points.

DESIGNATION METHODOLOGY

Needs and concerns for resource protection, promoting public safety, and reducing user conflicts associated with motorized vehicle use on public lands are identified by BLM personnel and through public involvement efforts. Resource Management Planning (RMP) criteria guide policy and manual direction fulfillment. The BLM assembles the appropriate data to justify ORV designations and completes new inventories when existing information is insufficient to resolve problems. The ORV designations are allocated in the formulation of RMP alternatives and decided in the selection of the preferred alternative. After approval of the selected RMP, a designation order is published in the Federal Register and entered in the District Designation Order Register. Implementation Plans are then developed to define and document a specific course of action necessary to carry out the ORV allocation decision. Implementation Plan recommendations are either implemented or included in Activity Plans for further planning consideration.

IMPLEMENTATION PLAN GUIDELINES

The implementation plan is an internal BLM document providing guidance to District and Resource Area managers on how to implement RMP decisions. It defines and documents a specific course of action necessary to achieve ORV designation decisions.

By definition, the implementation plan is brief and more concise than an activity plan. It identifies only those actions that are essential to implement the ORV designation decisions. If activity plans are developed, the information from implementation plans are incorporated into them. However, the ORV implementation plan remains a separate entity to provide continuity for management programming, budgeting, program support and to respond to public requests. A copy is maintained at the District and Resource Area offices.

The plan should contain the following information:

-- a map and narrative clearly showing the area's designation(s), the reasons for the designation(s), and any additional information needed to ensure public knowledge and understanding of the reasons for the designations. Design, scale, and format of maps are dependent on the detail needed to ensure adequate interpretation.

-- the brochures and maps needed to notify the public of the ORV designations.

-- the strategy for boundary, general information, and directional signing and the number, type, and location of signs.

-- the number, type, and location of physical constraints, such as barriers, fences, gates, ditches, etc.

-- public notices needed to inform the public about details of designations (such as announcements on radio or television, newsletters, letters to key interest groups, and public meetings).

-- an installation schedule for signs and physical constraints.

-- methods and schedules for supervising motorized field procedures and arrangements needed to enforce compliance with ORV designation decisions including cooperative agreements, user group assistance, trespass notices, citations, arrests, or other actions.

-- maintenance standards for signs and physical constraints.

-- estimates of all costs, work months, and personnel needed to meet implementation requirements.

EMERGENCY LIMITATIONS OR CLOSURES

Limitations of use or closure of areas and trails on public lands to motorized vehicle use under the authority of 43 CFR 8341.2 are not ORV designations.

Whenever the authorized officer determines that motorized vehicle use will cause or is causing considerable adverse effects on resources (soil, vegetation, wildlife habitat, cultural, historic, scenic, recreation, or other resources), the area must be immediately closed to the type of use causing the adverse effects (see 43 CFR 8341.2). Emergency limitations or closures are not used if there is sufficient time to complete standard or interim designations. They must remain in force only until one of those designations can be made or until the adverse effects are eliminated and measures to prevent their recurrence have been implemented (whichever occurs first). The steps in emergency closure are listed in Table E-1.

TABLE E-1: STEPS IN THE EMERGENCY CLOSURE PROCESS

STEP	ACTION	RESPONSIBILITY
Problem Identification	Identify and briefly document the problem that is causing considerable adverse effect.	As assigned.
Analysis	Briefly document the adverse effects.	As assigned.
Decision	Complete and publish the emergency order in the Federal Register.	District Manager
Implementation	Post the affected area and notify the affected persons at the earliest date possible, using the most effective means available.	As assigned.

NOTE: The actions noted above could be completed in a very short time frame, a matter of hours, if necessary.

A record of the problem identification, analysis, closure order, and action taken to inform the public is maintained in the District office and is available for public review. The closure or limitation is entered in the District Designation Order Register.

APPENDIX F

RECREATION OPPORTUNITY SPECTRUM (ROS)

The Recreation Opportunity Spectrum (BLM Manual 8320) provides a framework for stratifying and defining classes of outdoor recreation opportunity environments. The premise is that recreation quality is best assured through the availability of a variety of outdoor recreation opportunities spanning the entire spectrum. The spectrum ranges from essentially natural, low-use areas (resource dependent recreation opportunities) to highly developed, intensive use areas (facility/vehicle dependent recreation opportunities).

Recreation opportunities are expressed in terms of three principal components: the types of environmental settings available, the variety of activities possible, and the types of experiences that can be achieved through participation.

The primary determinant of ROS Classes is the setting opportunity. It describes the overall outdoor recreation environment where activity occurs, influences the types of recreation activity that can occur, and ultimately determines the resulting types of experiences that can be achieved.

Activities are not bound to opportunity classes and most activities can take place in some shape or form throughout the spectrum. However, general activity opportunities can be described per ROS class.

A particular type of experience is related to the environmental setting and activity engaged in and also in individual differences based on a number of extraneous variables (i.e. background, education, sex, age, place of residence, etc.). The opportunity for a particular experience can be described in a general way.

DELINEATION OF ROS CLASSES

After determining the setting, activity, and experience opportunities, areas are assigned to one of six ROS Inventory Classes. Each class is delineated to identify the available outdoor recreation opportunity that exists. The six ROS classes are described below in general non-technical terms.

PRIMITIVE CLASS

The setting opportunity consists of contiguous areas of about 5,000 acres, lying more than three miles from the nearest point of motor vehicle access, with essentially unmodified natural landscapes, where there is little evidence of other people, and that are almost completely free of management controls. Activity opportunities consist of resource-based recreation and generally include overnight backpack camping, nature photography, backcountry hunting, canoeing, and snowshoeing. The experience opportunity consists of the chance to achieve a strong sense of solitude and isolation from human civilization, to feel as one with nature, and to encounter a great degree of personal risk and challenge.

SEMI-PRIMITIVE NON-MOTORIZED CLASS

The setting opportunity consists of contiguous areas of about 2,500 acres, lying at least one-half mile from the nearest point of motor vehicle access, with predominantly natural landscapes, where there are some evidences of other people, and where there are very few management controls. Activity opportunities consist of resource-based recreation and generally include backpack camping, nature viewing, backcountry hunting, canoeing and cross-country skiing. The experience opportunity consists of the possibility to avoid the sights and sounds of people, achieve a high degree of interaction with nature and to experience a great deal of personal risk and challenge.

SEMI-PRIMITIVE MOTORIZED CLASS

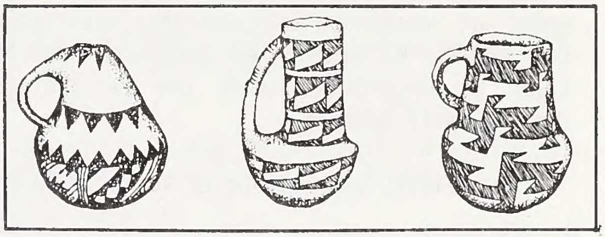
The setting opportunity consists of contiguous areas of about 2,500 acres, sometimes along unmaintained two-track routes, having mostly natural landscapes where there are some evidences of other people but numbers and frequency of contact seem to remain low, and where there are few management controls. Activity opportunities consist mainly of resource-based recreation and generally include day hunting, climbing, vehicle trail riding, mountain biking, hiking, and snowmobiling. The experience opportunity consists of the chance to enjoy isolation from human civilization and technology, the likelihood of contacting other people, achieving a high degree of interaction with the natural environment, and feeling a moderate degree of personal risk and challenge.

ROADED NATURAL CLASS

The setting opportunity consists of areas alongside or near improved and maintained roads, with naturally appearing but human-modified landscapes where there are often evidences and moderate numbers of people, and where there are visible management controls and developments. Activity opportunities consist of a mixture of resource and facility/vehicle-dependent recreation and generally include wood gathering, downhill skiing, fishing, off-highway vehicle driving, interpretive uses, motorboating, and vehicle camping. The experience opportunity consists of the chance to perceive a sense of security in the moderate number of visitor encounters and intermittent human developments available and the chance for some personal risk taking and challenges.

RURAL CLASS

The setting opportunity consists of areas alongside or near paved highways, with heavily modified landscapes where there are considerable evidences or numbers of other people, and where management controls and developments are often seen. Activity opportunities consist of mostly facility/vehicle-dependent recreation and generally include vehicle sightseeing, horseback riding, onroad bicycling, golf, swimming, walking, picnicking, and outdoor competitive games. The experience opportunity consists of the chance to enjoy modern visitor conveniences, moderate to high levels of interactions with other people and a feeling of security from personal risk.



URBAN CLASS

The setting opportunity consists of areas near paved highways, where the natural landscape is dominated or replaced by human-made developments, where there are great numbers and evidences of other people, and where management controls are numerous and dominant. Activity opportunities are facility/vehicle-dependent and generally include concerts, wave pools, amusement parks, zoo/fair visits, vehicle racing facilities, spectator sports, and indoor competitive games. The experience opportunity consists of the availability of numerous modern conveniences, being entertained, encountering large numbers of people, interacting with an exotic and manicured environment, and a feeling of being very secure with personal risk subdued.

MANAGEMENT OBJECTIVES FOR ROS CLASSES

PRIMITIVE CLASS OBJECTIVE

The primitive class is managed to be essentially free from evidence of humans, human-induced restrictions, and on-site controls. Motorized vehicle use within the area is not permitted. The area is managed to maintain an extremely high probability of experiencing isolation from the sights and sounds of others (not more than three to six group encounters per day), independence, closeness to nature, self-reliance through the application of backcountry skills, and an environment that offers a high degree of challenge and risk.

Backcountry use levels and management of renewable resources are dependent on maintaining natural ecosystems and primitive experience levels. The consumption of renewable resources is subject to the protection of backcountry recreational values. Frequency of managerial contact with users is very low.

SEMI-PRIMITIVE NON-MOTORIZED CLASS OBJECTIVE

Semi-primitive non-motorized areas are managed to be largely free from the evidence of humans, human-induced restrictions, and on-site controls. Motorized vehicle use is prohibited (except by permit). Limited facilities for the administration of livestock and visitor use are allowed, but off-site administration is encouraged. Project designs should stress protection of natural values and maintaining the integrity of a predominantly natural environment. Areas are managed to maintain a good probability of experiencing minimum contact with others, self-reliance through the application of backcountry skills, and an environment that offers a high degree of risk and challenge.

Backcounty use levels and management of renewable resources are dependent on maintaining ecosystems comparable to naturally occurring ecosystems. The consumption of renewable resources is subject to the protection of backcountry recreational values. Grazing is allowed, subject to restrictions placed on use of motorized vehicles. Facilities associated with grazing are limited to those necessary for maintaining existing numbers, adequate distribution, and seasons of use, consistent with the allotment management plans. Mineral development is subject to valid existing rights. Frequency of managerial contact with users is low.

SEMI-PRIMITIVE MOTORIZED CLASS OBJECTIVE

Semi-primitive motorized areas are managed to provide a naturally appearing environment. Evidence of humans, restrictions, and management controls are present but subtle. Motorized vehicle use is permitted. Concentration of users should be low. On site interpretive facilities, low standard roads and trails, trailheads, and signing should stress the natural environment in their design and be the minimum necessary to achieve resource objectives.

The consumption of natural resources is allowed. In the review of plans of operations, utility corridors, rights-of-way, and other surface-disturbing projects, effort is taken to reduce their impacts on the natural environment. Frequency of managerial contact with visitors is low to moderate on trails and primitive roads.

ROADED NATURAL CLASS OBJECTIVE

Roaded natural areas are managed to provide a natural-appearing environment with moderate evidences of the sights and sounds of humans. Motorized use is permitted. Concentration of users is moderate with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Development of facilities for motorized use is provided for in any proposed construction standards and design of facilities.

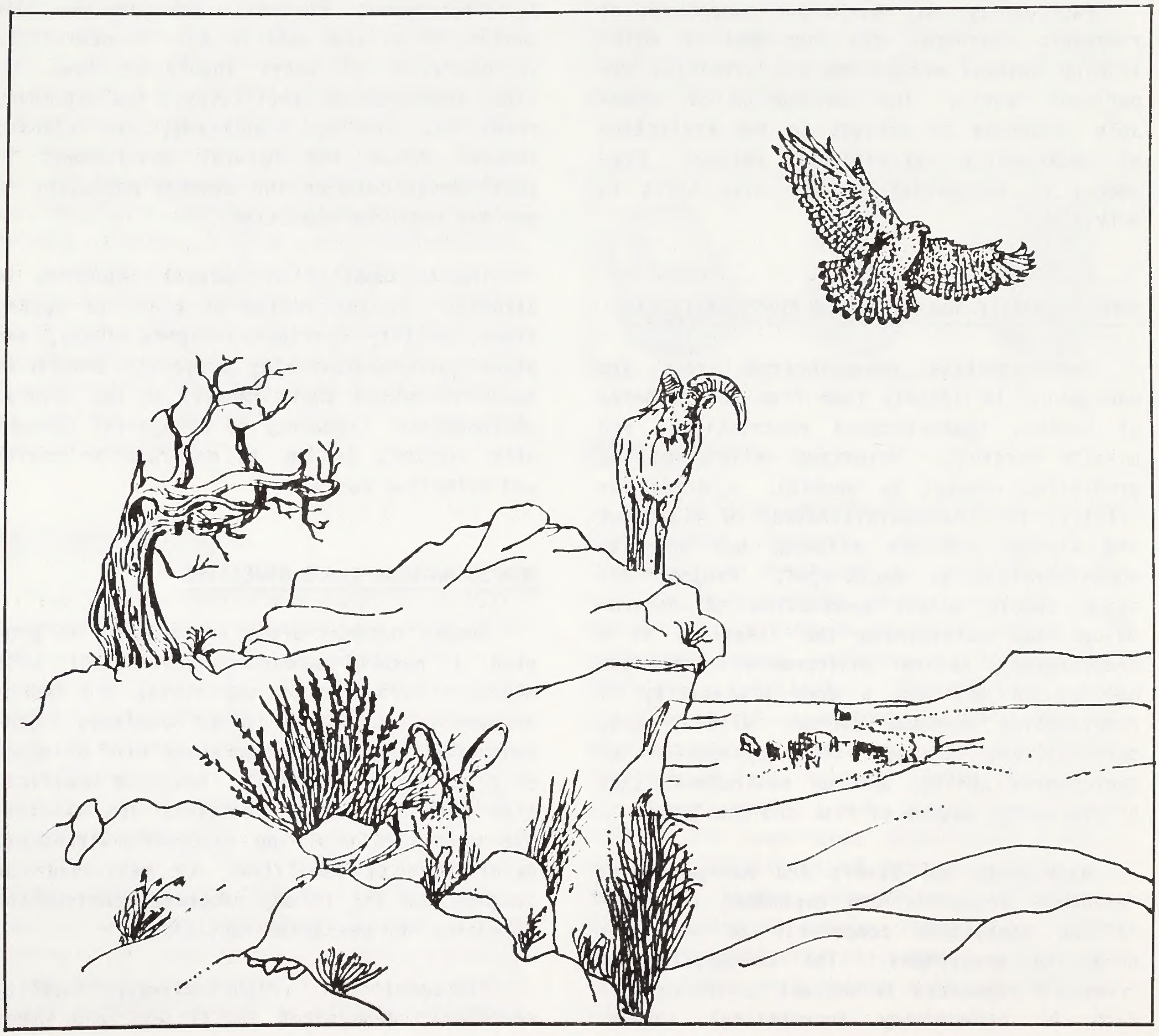
Placement of rights-of-way, utility corridors, management facilities, and other surface-disturbing activities would be favored over placement in semi-primitive non-motorized or semi-primitive motorized areas when applicable. The consumption of natural resources is allowed except at proposed or developed trailheads, developed recreation areas, and where geological, cultural, or natural features are interpreted as major themes. Frequency of managerial contact with visitors is moderate.

RURAL CLASS OBJECTIVE

Rural areas are managed to provide a setting that is substantially modified in foreground and background views with moderate to high evidences of the sights and sounds of civilization. Motorized use is permitted. Concentration of users is sometimes high with the evidences of other users being substantial. Resource modification and utilization practices are sometime dominant in a somewhat manicured environment. Standards for road, highway, and facility development are high for the purposes of user convenience. Frequency of managerial contact with visitors is moderate to high.

URBAN CLASS OBJECTIVE

The FRA does not manage for urban types of recreation opportunities.



APPENDIX G

VISUAL RESOURCE MANAGEMENT (VRM)

DETERMINATION OF VRM CLASS RATINGS

Visual resource classes are categories assigned to public lands which serve two purposes: (1) an inventory tool that portrays the relative value of the visual resources and (2) a management tool that portrays management objectives.

Ratings from scenic quality classes, visual sensitivity levels, and distance zones are combined to form VRM classes. A VRM class identifies the suggested degrees of human modification that should be allowed in a certain landscape from a visual resources standpoint.

Scenic quality classes are rated for landform, water, color, vegetation, intrusions, and uniqueness. These elements are combined and the area is classified as Class A - unique, outstanding features; Class B - outstanding features common to the physiographic region; or Class C - features common to the physiographic region.

Sensitivity levels are determined on the basis of frequency of travel through an area, use of area, and public knowledge of the area. These elements are rated and the area is assigned a high, medium, or low sensitivity level.

Distance zones are placed in three categories: foreground/middleground zone, background zone, and seldom seen zone. The foreground/middleground zone is closest to the viewer and requires more attention and consideration in management decisions because of the great detail that can be seen in the landscape. The background and seldom seen zones are viewed in less detail by the observer and most impacts blend with the landscape because of the distance.

CRITERIA FOR VRM CLASSES

After class ratings are completed for scenic quality, visual sensitivity, and distance zones, areas are assigned to one of four management classes. These classes are designed to maintain or enhance visual quality and describe the different degrees of modification to the basic elements of the landscape allowed.

CLASS I: Applies to those areas where a management decision has been made previously to maintain a natural landscape (e. g. Wilderness Areas, wild sections of National Wild and Scenic Rivers, and other congressionally or administratively designated areas.

CLASS II: Landscapes with Class A scenery quality, or Class B scenery quality in the foreground/middleground zone with high visual sensitivity. Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape.

CLASS III: Landscapes with Class B scenery quality and high visual sensitivity in the background zone, or with Class B scenery quality and medium visual sensitivity in the foreground/middleground zone or with Class C scenery of high visual sensitivity in the foreground/middleground zone. Changes in basic elements (form, line, color, texture) caused by management activity may be evident in the characteristic landscape; however, the changes should remain subordinate to the visual strength of the existing character.

CLASS IV: Landscapes with Class B scenery quality and high visual sensitivity in the seldom seen visual zone, or with Class B scenery quality and medium or low visual sensitivity in the background or seldom seen zones, or with Class C scenery quality (except with high sensitivity in the foreground/middleground zone). Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

MANAGEMENT OBJECTIVES FOR VRM CLASSES

CLASS I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

CLASS II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

CLASS III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

CLASS IV: The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

CONTRAST RATING OBJECTIVES

For activities proposed on public lands, impacts are evaluated with the visual resource contrast rating system, a method of evaluating the visual contrast of a proposed activity with the existing landscape character.

The amount of contrast is measured by separating the landscape into its major features (land and water surface, vegetation, and structures) and then predicting the magnitude of change in contrast for each of the basic elements (form, line, color, and texture) to each of the features. Assessing the amount of contrast for a proposed activity in this manner will indicate the severity of impact and serve as a guide in determining what is required to reduce the contrast so it will meet the visual management class requirements for the area. Objectives for the VRM classes are listed below:

CLASS I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

CLASS II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

CLASS III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

CLASS IV: The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

APPENDIX H

SUMMARY OF ALLOTMENT CONDITIONS

Allotment Name & Number	Public Acres	Ecological Condition Class Area** Good	Fair	Poor	Apparent Trend	Allowable Livestock Grazing Use (AUMs)	5 Year Aver. Livestock Grazing Use (AUMs)	Season of Use From - To	Kind of Livestock	Selective Management Category
6004* Carson-Gallegos Comm.	29,300	1,194	23,706		Static	3,759	3,759	3/1 - 2/28	Sheep	C
6005 O.J. Carson Ranch	7,895		1,037	6,116	Downward	1,264	449	3/1 - 5/15 11/15 - 2/28	Cattle	I
6006 Marquez	3,863		Unknown		Unknown	580	580	3/1 - 2/28	Cattle	C
6007* Huerfano Comm.	19,145		16,614	1,144	Static	3,485	3,485	3/1 - 2/28	Sheep	C
6008* Bisti Comm.	6,186	3,195	1,065		Static	764	764	3/1 - 2/28	Sheep	C
6009 Navajo Tribe - Smith	2,107		819		Static	237	237	3/1 - 2/28	Cattle	C
6010 Black Lake	42,219	13,668	20,314		Static	4,560	4,559	3/1 - 2/28	Cattle	M
6011* Otis Comm.	26,520		23,240	623	Static	3,260	3,260	3/1 - 2/28	Sheep	C
6012 Tsaya	13,208	11,957	4,096		Static	1,533	1,343	3/1 - 2/28	Cattle	M
6013 Kimbeto Comm.	61,864	19,738	37,574	10,074	Downward	7,162	7,162	3/1 - 2/28	Cattle, Sheep Horses	I
6014 Escavada	15,0270		12,827	2,264	Static	2,724	1,270	3/1 - 2/28	Cattle	I
6015 Counselor Comm.	71,165		58,429	9,738	Static	10,705	10,705	3/1 - 2/28	Cattle, Sheep, Horses	I
6016* Lake Valley Comm.	974		Unknown		Unknown	110	110	3/1 - 2/28	Sheep	C
6017 Navajo Tribe - Chaco	2,077		Unknown		Unknown	233	233	3/1 - 2/28	Cattle	C
6018* Pueblo Pintado Comm.	13,922		Unknown		Unknown	1,569	1,569	3/1 - 2/28	Sheep	C
6019 Tanner Lease	640		Unknown		Unknown	96	96	3/1 - 2/28	Cattle	C

Allotment Name & Number	Public Acres	Ecological Condition Class Area**			Apparent Trend	Allowable Livestock Grazing Use (AUMs)	5 Year Aver. Livestock Grazing Use (AUMs)	Season of Use From - To	Kind of Livestock	Selective Management Category
		Good	Fair	Poor						
6021 T20N R6W S23 W1/2, SE	480		Unknown		Unknown	54	54	3/1 - 2/28	Cattle	C
6022 Casaus	1,960		1,955		Static	180	180	3/1 - 2/28	Cattle	I
6023* Star Lake Comm.	79,562	2,835	66,150	9,134	Static	13,601	13,601	3/1 - 2/28	Sheep	C
6024* Castillo Comm.	18,325		9,216	8,592	Static	4,733	4,733	3/1 - 2/28	Sheep	C
6025 D.P. Elkins	320		Unknown		Unknown	48	48	3/1 - 2/28	Cattle	C
6026 D.J. Elkins	160		Unknown		Unknown	24	24	3/1 - 2/28	Cattle	C
6027 L.E. Elkins	2,400		Unknown		Unknown	360	360	3/1 - 2/28	Cattle	C
6028* Becenti Comm.	2,570		Unknown		Unknown	289	289	3/1 - 2/28	Cattle	C
6032 T18N R10W S4 W1/2	318		Unknown		Unknown	40	40	3/1 - 2/28	Sheep	C
6033* White Horse Comm.	4,182		Unknown		Unknown	471	471	3/1 - 2/28	Sheep	C
6034 Navajo Tribe - Elkins	3,675		Unknown		Unknown	414	414	3/1 - 2/28	Cattle	C
6035 Hospah	1,120		Unknown		Unknown	120	120	3/1 - 2/28	Cattle	C
6036 Jacobs	2,010		Unknown		Unknown	264	264	3/1 - 2/28	Cattle	C
6037 Carrica	160		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
6038* Navajo Tribe - Werito G.	480		Unknown		Unknown	54	54	3/1 - 2/28	Cattle	C
6039* Navajo Tribe - Werito S.	1,660		Unknown		Unknown	187	187	3/1 - 2/28	Cattle	C
6040* Little Water Comm.	7,998		Unknown		Unknown	901	901	3/1 - 2/28	Sheep	C
6044* Rincon-Marquez Comm.	8,180		2,160	5,760	Downward	921	921	3/1 - 2/28	Sheep	C

Allotment Name & Number	Public Acres	Ecological Condition Class Area** Good	Fair	Poor	Apparent Trend	Allowable Livestock Grazing Use (AUMs)	5 Year Aver. Livestock Grazing Use (AUMs)	Season of Use From - To	Kind of Livestock	Selective Management Category
6045* Navajo Tribe - Arivso	2,581			2,669	Downward	291	291	3/1 - 2/28	Cattle	C
6046* Tsayatoh Comm.	6,680		Unknown		Unknown	752	752	3/1 - 2/28	Sheep	C
6047 Wilson	197		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
6048* Church Rock Comm.	7,763		Unknown		Unknown	874	874	3/1 - 2/28	Sheep	C
6049* Pinedale Comm.	4,553		Unknown		Unknown	513	513	3/1 - 2/28	Sheep	C
6050* Wingate Comm.	1,276		Unknown		Unknown	144	144	3/1 - 2/28	Sheep	C
6051* Mariano Lake Comm.	4,565		Unknown		Unknown	514	514	3/1 - 2/28	Sheep	C
6053 Smouse Lease	600		Unknown		Unknown	113	113	3/1 - 2/28	Cattle	C
6054* Casmero Lake Comm.	3,794		Unknown		Unknown	427	427	3/1 - 2/28	Sheep	C
6055 Divide Allot.	2,080		Unknown		Unknown	312	312	3/1 - 2/28	Cattle	C
6056* Manuelito Comm.	1,760		Unknown		Unknown	198	198	3/1 - 2/28	Sheep	C
6057* Red Rock Comm.	3,125		Unknown		Unknown	352	352	3/1 - 2/28	Sheep	C
6060* Thoreau Comm.	1,080		Unknown		Unknown	122	122	3/1 - 2/28	Sheep	C
6062 Andrews Allot.	320		Unknown		Unknown	44	44	3/1 - 2/28	Cattle	C
6063 Escondida Ranch Allot.	640		Unknown		Unknown	156	156	3/1 - 2/28	Cattle	C
6064 D. Berryhill	1,439		Unknown		Unknown	276	276	3/1 - 2/28	Cattle	C
6065 Harris	5,705		Unknown		Unknown	560	560	3/1 - 2/28	Cattle	C
6066 T14N R10W S26	640		Unknown		Unknown	96	96	3/1 - 2/28	Cattle	C
6067* Two Well Comm.	5,830		Unknown		Unknown	657	657	3/1 - 2/28	Sheep	C
6068 Cousins	320		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C

Allotment Name & Number	Public Acres	Ecological Condition Class Area** Good	Fair	Poor	Apparent Trend	Allowable Livestock Grazing Use (AUMs)	5 Year Aver. Livestock Grazing Use (AUMs)	Season of Use From - To	Kind of Livestock	Selective Management Category
6071 Turpen	321		Unknown		Unknown	60	60	3/1 - 2/28	Cattle	C
6072 Bass Allot.	320		Unknown		Unknown	84	84	3/1 - 2/28	Cattle	C
6073 Ford Lease	640		Unknown		Unknown	108	108	3/1 - 2/28	Cattle	C
6074* Prewitt Comm.	4,000		Unknown		Unknown	451	451	3/1 - 2/28	Sheep	C
6075 Navarre Sect. 15 Lease	160		Unknown		Unknown	24	24	3/1 - 2/28	Cattle	C
6076* Haystack Comm.	164		Unknown		Unknown	18	18	3/1 - 2/28	Sheep	C
6077* Degederio Comm.	256		Unknown		Unknown	29	29	3/1 - 2/28	Sheep	C
6078 Elkins Land Co.	800		Unknown		Unknown	288	288	3/1 - 2/28	Cattle	C
6079 T13N R10W S24	560		Unknown		Unknown	84	84	3/1 - 2/28	Cattle	C
6081 Southeast Ambrosia Lake	1,490		Unknown		Unknown	276	276	3/1 - 2/28	Cattle	C
6082 Fernandez Comm.	3,440		Unknown		Unknown	852	852	3/1 - 2/28	Cattle	C
6083 Marquez 1	798		Unknown		Unknown	96	96	3/1 - 4/30 11/1 - 2/28	Cattle	C
6084 Pena	6,376		Unknown		Unknown	1,200	1,200	3/1 - 2/28	Cattle	C
6085 T13N R9W S 28 & S30	480		Unknown		Unknown	96	96	3/1 - 2/28	Cattle	C
6086 Section 22	280		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
6087 Bechdol	630		Unknown		Unknown	122	122	3/1 - 2/28	Cattle	C
6088 Brown	980		Unknown		Unknown	58	58	3/1 - 2/28	Cattle	C
6089 Candelaria	1,800		Unknown		Unknown	167	167	3/1 - 2/28	Cattle	C
6090 Carson	400		Unknown		Unknown	48	48	3/1 - 2/28	Cattle	C
6091 Chacon	124		Unknown		Unknown	14	14	3/1 - 5/15 11/1 - 2/28	Cattle	C

Allotment Name & Number	Public Acres	Ecological Condition Class Area** Good	Fair	Poor	Apparent Trend	Allowable Livestock Grazing Use (AUMs)	5 Year Aver. Livestock Grazing Use (AUMs)	Season of Use From - To	Kind of Livestock	Selective Management Category
6092 Clawson	320		Unknown		Unknown	50	50	3/1 - 2/8	Cattle	C
6093 Corbett	640		Unknown		Unknown	72	72	3/1 - 5/31 11/1 - 2/28	Cattle	C
6094 Davis	2,626		Unknown		Unknown	371	371	3/1 - 2/28	Cattle	C
6095 Donaldson	2,140		Unknown		Unknown	259	259	3/1 - 2/28	Cattle	C
6096 Hatley	400		Unknown		Unknown	60	60	3/1 - 2/28	Cattle	C
6097 Hooten	160		Unknown		Unknown	24	24	3/1 - 2/28	Cattle	C
6098 Howard, D.	160		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
6099 Howard, W.	120		Unknown		Unknown	17	17	3/1 - 2/28	Cattle	C
6100 Huffman	503		Unknown		Unknown	70	70	3/1 - 2/28	Cattle	C
6101 Humphries	640		Unknown		Unknown	72	72	3/1 - 2/28	Cattle	C
6102 Jacquez	596		Unknown		Unknown	85	85	3/1 - 2/28	Cattle	C
6103 Lard	280		Unknown		Unknown	24	24	3/1 - 2/28	Cattle	C
6104 McDonald	40		Unknown		Unknown	4	4	3/1 - 6/30	Cattle	C
6105 Meharg	672		Unknown		Unknown	108	108	3/1 - 2/28	Cattle	C
6106 Mercado	2,000		Unknown		Unknown	307	307	3/1 - 2/28	Cattle	C
6107 Mosler	1,120		Unknown		Unknown	216	216	3/1 - 2/28	Cattle	C
6108 Ng	193		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
6109 Post	320		Unknown		Unknown	38	38	3/1 - 2/28	Cattle	C
6110 Sanchez	236		Unknown		Unknown	36	36	3/1 - 2/28 11/1 - 2/28	Cattle	C
6111 Schmitz	803		Unknown		Unknown	108	108	3/1 - 2/28	Cattle	C
6112 Tapicitoes	440		Unknown		Unknown	108	108	3/1 - 2/28	Cattle	C

Allotment Name & Number		Public Acres	Ecological Condition Class Area**			Apparent Trend	Allowable Livestock Grazing Use (AUMs)	5 Year Aver. Livestock Grazing Use (AUMs)	Season of Use From - To	Kind of Livestock	Selective Management Category
			Good	Fair	Poor						
6113	Stevenson, T.W.	560		Unknown		Unknown	108	108	3/1 - 2/28	Cattle	C
6114	Stevenson, W.L.	1,613		Unknown		Unknown	182	182	3/1 - 2/28	Cattle	C
6115	Vigil	136		Unknown		Unknown	40	40	3/1 - 5/15 11/1 - 2/28	Cattle	C
6116	Williams	160		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
6117	Woodfill	1,040		Unknown		Unknown	78	78	3/1 - 2/28	Cattle	C
6118	Southwest Ambrosia Lake	259		Unknown		Unknown	36	36	3/1 - 2/28	Cattle	C
	T20N R6W S27 SE1/4	160		Unknown		Unknown	18	18	3/1 - 2/28	Cattle	C
6119	T14N R11W S8, 20, 28	1,440		Unknown		Unknown	196	196	3/1 - 2/28	Cattle	C
6121	T18N R9W S4	640		Unknown		Unknown	80	80	3/1 - 2/28	Cattle	C

*Allotments administered under a Memorandum of Understanding (MOU) between the BLM, BIA and the Navajo Tribe.
**No acreage is in excellent condition

APPENDIX I

CONFLICTS BETWEEN GRAZING AND OTHER USES

ALLOTMENT NUMBER	ALLOTMENT NAME	CONFLICTS*
6005	O. J. Carson	1,2,3
6013	Kimbeto Community	1,2
6014	Escavada	3
6015	Counselor Community	1,3
6022	Casaus	2

* Conflicts are:
1. Watershed values
2. Forage utilization
3. Ecological condition (present levels of grazing use may exceed current vegetative production)

APPENDIX J

FARMINGTON RESOURCE AREA ALLOTMENT CATEGORIZATION

The Range Management Policy of March 1982 (Washington Office Memorandum 82-292) requires the BLM to categorize allotments. All allotments are grouped into one of three resource management categories: M-Maintain, I-Improve, C-Custodial. This categorization is designed to facilitate assigning management priorities among allotments. The categorization criteria are listed below.

CATEGORY M (MAINTAIN)	CATEGORY I (IMPROVE)	CATEGORY C (CUSTODIAL)
An allotment must meet all of the following conditions:	An allotment must meet any one of the following 3 conditions:	An allotment must meet all of the following conditions:
1. Has no significant resource conflicts.	1. Has a potentially significant resource conflict.	Has a stable range condition of 29 or less.
AND	OR	AND
2. Has only a moderate potential for improvement in forage production.	2. Has a high to medium potential for improvement in forage production and a range condition rating of 30 or more.	2. Has a low potential for improvement in forage production.
AND	OR	AND
3. Has a range condition of 40 or higher and a static or improving range trend.	3. Has a range condition rating of 50 or less and a static or declining range trend.	3. Has no significant resource conflicts.
OTHER CONSIDERATIONS	**OTHER CONSIDERATIONS**	**OTHER CONSIDERATIONS**
Contains 30% or more public land or more than 1,540 acres public land.	Contains 30% or more public land or more than 1,540 acres public land.	Contains less than 30% public land or less than 1,540 acres public land.

NOTE: Any parcel of public land, regardless of size, with an identified significant resource conflict, will qualify for the "I" category.

Different management actions would be taken for each management category. The following is a list of these management actions which could occur.

MAINTAIN CATEGORY (M)

Proposed grazing operations:
- Normal grazing operation (proper season of use, number and kind of livestock).
- Increases in livestock grazing use.

Monitoring at intensity needed to detect undesirable changes.
Allowable rangeland improvements.
Cooperative Management Plan (CMP) development.
Standard operating procedures.

IMPROVE CATEGORY (I)

Proposals for resolving identified issues and conflicts, including:
- Initial stocking levels (season of use, number and kind of livestock).
- Constraints on livestock grazing use needed to protect or enhance other resource uses and values.
- Production inventories and vegetation or forage allocations needed to resolve conflicts.
- Monitoring at intensity needed to help resolve issues and conflicts.

Site-specific rangeland improvements (if known), or typical improvements needed to meet multiple-use objectives.
CMP development proposed.
Standard operating procedures.

CUSTODIAL CATEGORY (C)

Proposed grazing operations:
- Normal operation (season of use, number and kind of livestock).
- Licensing on an ephemeral forage basis.
- Livestock use excluded.

Monitoring at intensity needed to protect existing resource values.
Allowable rangeland improvements.
CMP development proposed.
Standard operating procedures.

Allotment categories will be periodically evaluated, during the five-year monitoring program, to determine if the allotment characteristics have changed significantly enough to warrant a change in categories.

M and I category allotments will be monitored through the use of rangeland studies designed to detect changes in range condition and trend.

The results will be analyzed at two-year intervals on the I category allotments and at five-year intervals on the M category allotments. Depending on the results of these studies, it will be determined if the allotment should remain in its present category or be moved to another.

Any time a significant resource conflict is identified on an M or C category allotment, it will be considered for inclusion in the I category until the conflict is resolved.

The BLM will continue to evaluate and make decisions on all actions relating to grazing and rangeland improvements on all allotments, regardless of the category.

APPENDIX K

NO-GRAZING ALTERNATIVE

INTRODUCTION

No grazing was originally considered as an alternative. However, "No Grazing" on the public lands was determined not to be feasible, practical, or implementable, and it was dropped from consideration. Nevertheless, the impacts of this alternative are analyzed below. This alternative would provide for improved ecological condition, enhanced wildlife habitat, and improved protection of watershed resources through elimination of livestock grazing use on approximately 526,700 acres of public land in the vegetative uses issue area (see Map 1-1).

To implement this alternative, all public lands in the issue area would need to be fenced to exclude the livestock which would continue to graze on the adjoining private and state lands formerly contained within the allotments. This would require the construction of approximately 1,085 miles of fence at an estimated cost of approximately $3,797,500. The cost of fencing these lands would make the implementation of this alternative neither realistic nor feasible.

ENVIRONMENTAL CONSEQUENCES

There would be no major impacts to the following resources as a result of implementation of the No Grazing Alternative: minerals, wilderness, paleontology, air quality, forestry, cultural resources, and lands.

RANGELAND

Under this alternative, a reduction of 78,157 AUMs would be proposed for 102 allotments. These reductions would be implemented in accordance with 43 CFR 4110.4-2(b) which states "the permittees and lessees shall be given two years prior notification except in cases of emergency before their grazing permit or grazing lease and grazing preference may be cancelled."

In the short term, vigor of preferred livestock forage would improve on all allotments. In the long term, improved ecological conditions would occur on all allotments. The most significant increases in ecological condition would occur on the "I" and "M" allotments. Table K-1 and Figure K-1 summarize these estimated improvements in ecological condition. This table does not include estimates for most Section 15 allotments because current ecological condition has not been determined and the base data for projecting long-term changes in ecological condition are not available.

SOILS AND HYDROLOGY

Under this alternative watershed conditions would improve commensurate with vegetative conditions except where gully systems are active. Fencing and no grazing will not improve public lands situated downslope from lands in poor vegetative condition. In these situations, public lands would continue to deteriorate from the impacts of off-site erosion processes and products. Overall, the benefits of this alternative would be minimal in relation to watershed problems and priorities.

WILDLIFE

WILDLIFE HABITAT

Habitat for wildlife would generally be improved if grazing were eliminated on the 526,700-acre vegetative uses issue area. Cover for small animals would increase throughout the vegetative uses issue area and ground nest trampling would be reduced.

Domestic livestock grazing may have beneficial impacts to wildlife habitat by increasing habitat diversity, increasing production of certain forage, or opening areas for easier access by wildlife (Nowakowski and Ffolliott 1980). Therefore, it is likely that habitat changes would be detrimental to some species. None of these consequences would be long term or irreversible since grazing could be reinstated.

THREATENED OR ENDANGERED SPECIES

If livestock were removed from the public lands in the issue area, the state-listed species (see Table 2-1) would benefit. Mortality to rare plants by livestock would be eliminated. The improved ecological condition would be beneficial, but probably of little consequence to the federally-listed species (Table 2-1). These would be neither long-term nor irreversible consequences since livestock grazing could be reinstated.

OUTDOOR RECREATION OPPORTUNITIES

Those recreation opportunities which are strongly linked with visual resources would be enhanced through implementation of the No Grazing Alternative. Those opportunities clustered around the more primitive end of the spectrum (see Appendix F) would particularly benefit since less evidence of man's impact is desirable in such recreation settings.

SCENIC QUALITY

In general, the visual resources of the vegetative uses issue area would be enhanced by implementation of the No Grazing Alternative. Greater amounts of vegetative cover as well as increases in specific species would be beneficial in the long run. Shifts in color and texture could be dramatic, with some change in form and line also occurring.

SOCIAL AND ECONOMIC CONDITIONS

The elimination of livestock grazing in the vegetative uses issue area would have the following social and economic impacts: (1) lifestyle would be influenced, (2) cultural values would be more difficult to foster, (3) incomes would be changed, (4) employment would be changed.

The following discussion indicates how the impacts are likely to occur and, where they can be quantified, gives some measure by which their magnitude may be considered.

Lifestyle generally is a reflection of social values. Most of the livestock operators in the issue area are from local families. In fact, in most cases the family has been in the area for generations and has made much of its living from the land through livestock production. However, with the change from an agricultural-based economy to one based on employment in industry, many of the local people have had to seek employment in other than livestock production. To try to maintain some of the social values they associated with the pastoral lifestyle some of them have tried to, at least nominally, stay in the livestock business. Having the livestock also provides some security in that, if the job is lost, the livestock can usually provide sustenance.

If grazing were eliminated, the operators in the issue area on five individual and two community Section 3 allotments, and 40 Section 15 allotments will have to make adjustments. While it is anticipated that most would make adjustments that would allow them to continue to have some livestock, elimination of grazing on public lands would cause serious social concerns, and in a few cases, economic concerns as well.

Social concerns are not quantifiable, however, it is estimated that as many as 1,100 families (4,400 persons) could be affected. The magnitude of these impacts on a few of the older people could be severe.

Associated with, but somewhat separate from, lifestyle are the cultural values of closeness to family, helping family members, and working together for common goals that seem to be more easily taught in a rural subsistence setting than in the urban industrial setting. The loss of the ability to communicate these values would create a social impact if affected families were not able to continue ranching.

Figures from New Mexico State University (NMSU) ranch budgets for 1982 show small ranches (average of 121 AUs) with a negative net return to the operators' labor, management and capital. The Section 3 permittees in the issue area based on the NMSU budget figures would not contribute to the $3,501,000 farm income for McKinley and San Juan Counties and therefore the loss of their BLM grazing would not cause serious economic impacts to these permittees. This would probably be true as well for the Section 15 community allotment permittees.

Some of the Section 15 individual allotment permittees have large enough operations that they have positive net incomes but their dependency on BLM grazing is small enough that the net income loss if BLM grazing was discontinued would be less than $6,000 per year. This is less than two-tenths of one percent of the personal income from farming in McKinley and San Juan Counties for 1982 as reported by the Bureau of Economic Analysis. The money from livestock would be multiplied as it circulated in the economy but even with indirect income it would not be expected to exceed one percent of the FRA's total income.

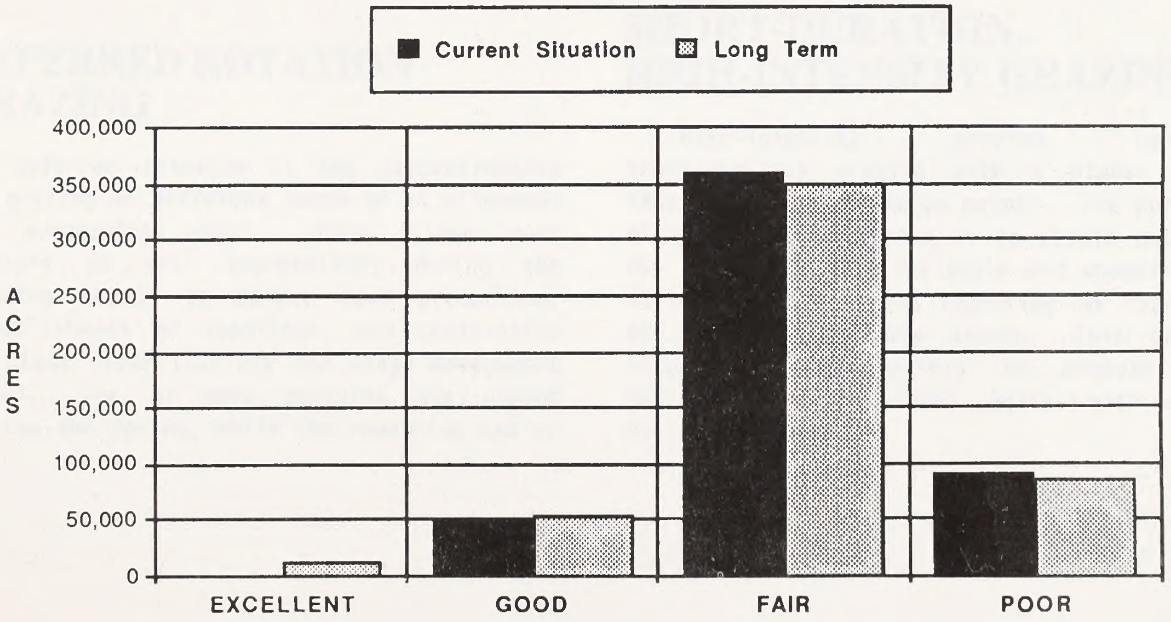
Most of the allotments employ only family labor and the allottees on community allotments are only employed part time. Two or three of the largest Section 3 allotments may require full-time employees and may reduce their employment if they had no more BLM grazing but no more than two or three full-time jobs are expected to be affected.

In summary, if grazing on public lands were eliminated, there would be local social and economic impacts. The magnitude of these impacts would only be significant to the individuals directly impacted.

TABLE K-1: CHANGES IN ECOLOGICAL CONDITION FOR THE NO-GRAZING ALTERNATIVE (ACRES)

	Excellent	Good	Fair	Poor	Total
Current Situation	0	50,614	361,357	91,997	503,968
Long Term	12,748	53,776	351,455	85,989	503,968

FIGURE K-1: CHANGES IN ECOLOGICAL CONDITION FOR THE NO-GRAZING ALTERNATIVE



APPENDIX L

GRAZING SYSTEMS

REST-ROTATION GRAZING

Under a rest-rotation grazing system, grazing is deferred on various parts of an allotment during succeeding years, and the deferred parts are allowed complete rest for one or more years (Society for Range Management 1974). The allotment is divided into pastures, usually with comparable grazing capacities. Each pasture is systematically grazed and rested so that livestock production and other resource values are provided for, while the vegetation cover is simultaneously maintained or improved. The practice provides greater protection of the soil resource against wind and water erosion (Johnson 1965; Hormay 1970; Ratliff, Reppert, and McConner 1972; Ratliff and Reppert 1974).

Any of several rest-rotation grazing systems may be used, depending upon the objectives for the allotment and the number of pastures.

DEFERRED ROTATION GRAZING

Deferred rotation is the discontinuance of grazing on different parts of an allotment in succeeding years. This allows each pasture to rest successively during the growing season to permit seed production, establishment of seedlings, and restoration of plant vigor (Society for Range Management 1974). One or more pastures are grazed during the spring, while the remaining one or more pastures are rested until after seed ripening of key species, and then grazed. Deferred rotation grazing differs from rest-rotation grazing in that no year-long rest is provided.

DEFERRED GRAZING

Deferred grazing is the discontinuance of grazing by livestock on an area for a specified period of time during the growing season. Under this system, grazing would begin after key plants have reached an advanced stage of development in their annual growth cycle. The growing season rest provided by this system promotes plant reproduction, establishment of new plants, or restoration of the vigor of old plants (American Society of Range Management 1964).

SHORT-DURATION, HIGH-INTENSITY GRAZING

High-intensity grazing permits short-duration grazing with a higher rate than would be considered normal. The purpose of this type of system is to obtain uniform use of all plants, desirable and undesirable alike, and to prevent regrazing on regrowth of the most desirable plants. This system allows desirable plants to compete for nutrients on an equal basis with less desirable plants.

APPENDIX M

RANGELAND IMPROVEMENTS

INTRODUCTION

The following is a discussion of typical design features and construction practices for the rangeland improvements and treatments which would be considered when implementing this RMP. There are many special design features not specifically discussed in this appendix that can be made part of a project's design. One example of a special design feature would be the use of a specific color fence post to blend with the surrounding environment and thereby mitigate some of the visual impact of the fence. These mitigating design features would be developed, if needed, for individual projects at the time an environmental assessment is written.

STRUCTURAL IMPROVEMENTS

FENCES

Fences would be constructed to divide allotments into pastures and to control livestock. Most fences would be three or four wires with steel posts spaced 16.5 feet apart with intermediate wire stays. Where fences may impair the movement of wildlife, they would be no more than 42 inches in height and the top two strands would be at least 12 inches apart, with the bottom wire smooth and at least 16 inches above the ground. Where appropriate on key big game areas, the top wire would also be smooth. Existing fences which create wildlife movement problems would be modified. Proposed fence lines would not be bladed or scraped. Gates or cattleguards would be installed where fences cross existing roads.

SPRING DEVELOPMENT

Springs would be developed or redeveloped using a backhoe to install a buried collection system, usually consisting of a perforated pipe and a collection box. Collection boxes are normally made of fiberglass with a cover and a fitting to which a delivery pipe is connected. A short pipeline would be installed to deliver water to a trough for use by livestock and wildlife. Normally the spring area would be fenced following development to exclude livestock.

PIPELINES

Wherever possible, water pipelines would be buried. The trench would be excavated with a backhoe, trencher, ripper tooth, or with similar equipment. The pipe would be placed in the trench and the excavated material used as backfill. Flexible or rigid plastic would be used depending on the system design. Pipelines would have water tanks spaced as needed to meet management objectives.

WELLS

Well locations would be selected based on well site investigations which would predict the depth to reliable aquifers. All applicable state laws and regulations that apply to the development of ground water would be observed, including water rights acquisition.

NON-STRUCTURAL IMPROVEMENTS

BURNING

Burning is normally proposed to reduce the amount of big sagebrush. Burning would normally be done during April-May or September-October, depending on the specific prescription written for each area, desired results, weather, and moisture conditions. Burn plans would be developed for each burn.

PLOWING AND SEEDING

Most of the sites to be treated are in poor or fair vegetative condition and have a low potential to improve under other management practices. Most of the existing vegetation would be eliminated during seedbed preparation, and the site would be seeded with species adapted to the site. The final selection of species to be seeded would depend on the planned use of the site and the management objectives for the allotment. Seed would be drilled wherever possible.

INTERSEEDING

This treatment differs from plowing and seeding in that existing vegetation is not eliminated during seedbed preparation.

Desirable plant species would be interseeded with existing vegetation. A range drill would be used to interseed strips. Broadcast seedings might be used as well. Species to be seeded would be selected to meet management objectives developed for the allotment.

CHEMICAL BRUSH CONTROL

One herbicide, tebuthiuron (N-[5-(1,1-dimethylethyl) - 1, 3, 4 - thiadiezol - 2-yl] - N, n'-dimethylurea) is proposed for use in controlling brush. The goal of herbicide treatments is to decrease the target species, which would result in an increase in grass and forb production. In addition, new chemicals currently being evaluated by the U.S. Environmental Protection Agency would be considered for possible use if and when they are approved. Before these chemicals would be used a site-specific environmental assessment would be prepared to determine impacts.

Tebuthiuron has been labeled and approved by the Environmental Protection Agency and the New Mexico Department of Agriculture for use on rangelands in New Mexico. Application rates would be established after a determination is made of the individual range sites involved and the conditions at the time of application. Directions for use, and precautions during use, would follow those set by the manufacturer of the herbicide.

Chemical treatments should control at least 80 percent of the target brush species. Killing as little as 30 percent of the target species would increase perennial grass production and remove the dominance of brush by reducing the competition for available moisture (Leifeste 1971). Grass production would remain higher than levels prior to treatment for seven to 30 years, depending on the rate of brush recovery. Density of brush species may increase several years after treatment with no detectable reduction in grass production. Some form of maintenance treatment would be necessary within 10 to 20 years after the initial treatment (Herbel et al. 1977).

Changes in plant composition would occur within one to three years following chemical application. Pelletized treatments would cause a gradual kill of brush species over this period, whereas foliar spray effects would be more immediate, usually killing plants by the end of the first growing season following treatment.

STANDARD OPERATING PROCEDURES

The following procedures would be followed in the construction of all management facilities and for vegetation manipulations.

1. Specific projects would be assessed individually through environmental assessments to determine whether there would be adverse environmental impacts.

2. Roads or trails would not normally be constructed to new construction or project sites. Use of existing roads and trails would be encouraged.

3. To comply with the National Historic Preservation Act of 1966, 36 CFR 800, and Executive Order 11593, all areas where ground is to be disturbed by range developments would be inventoried for prehistoric and historic features. Where feasible, all cultural resources located by this inventory would be avoided. The results of the inventory and determinations of eligibility for the National Register of Historic Places would be forwarded to the New Mexico State Historic Preservation Office for comment.

If cultural resources are found to be eligible for the National Register and cannot be avoided, a determination of the effect of the project on the resource(s), including appropriate mitigating measures if necesary, would be done in consultation with the New Mexico Historic Preservation Office and the Advisory Council on Historic Preservation. No action affecting the resource would be taken until the Advisory Council has had the opportunity to make comments.

If buried cultural remains are encountered during construction, the operator would temporarily discontinue construction until the BLM evaluated the discovery and determined the appropriate action.

4. No action would be taken by the BLM that could jeopardize the continued existence of any federally listed threatened or endangered plant or animal species. An endangered species clearance with the U.S. Fish and Wildlife Service (USFWS) would be required before any part of the proposal or alternatives would be implemented that could affect an endangered species or its habitat.

In situations where data are insufficient to make an assessment of proposed actions, surveys of potential habitats would be made before a decision is made to take any action that could affect threatened or endangered species. Should the BLM determine that there could be an effect on a federally listed species, formal consultation with the USFWS would be initiated. In the interim period before formal consultation, the BLM would not take any action that would make an irreversible or irretrievable commitment of resources that would foreclose the consideration of modifications or alternatives to the proposed action. When the USFWS opinion is received, if it should indicate the action would be likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the action would be abandoned or altered as necessary. All procedures thus described are in compliance with BLM Manual, Section 6840.

The BLM also would comply with any state laws applying to animal or plant species identified by the state of New Mexico as being threatened or endangered (in addition to the federally listed species).

5. All wilderness values would be protected on designated wilderness areas or on lands under wilderness review or study. Guidelines in the Interim Management Policy (USDI, BLM 1979), as amended, would be followed for all Wilderness Interim Management Areas. Wilderness Management Policy guidelines (USDI, BLM 1981a) would be followed for designated wilderness areas. No impairing projects would be allowed in these areas.

6. All actions would consider the BLM's Visual Resource Management criteria.

7. Wildlife escape devices would be installed and maintained in water troughs.

8. In crucial wildlife habitat (e.g. winter ranges, fawning/calving areas), construction work on projects would be scheduled during seasons when the animals are not concentrated to avoid or minimize disturbances.

9. After construction, any disturbed areas would be revegetated with a mixture of grasses, forbs, and shrubs as specified by the mitigating measures of the environmental assessment.

10. Analysis of cost effectiveness would be done on a Cooperative Management Plan (CMP) basis prior to the installation of any structural or non-structural improvements.

11. All areas where vegetative manipulations occur would be totally rested from grazing for at least two growing seasons following treatment.

12. Vegetative manipulation projects would be done in irregular patterns, creating more edge than strip and block manipulation, with islands of vegetation left for cover.

13. Consultation with the New Mexico Department of Game and Fish would be required prior to job survey, design, and accomplishment in accordance with the existing Memorandum of Understanding between the New Mexico Department of Game and Fish and the BLM.

14. Chemical treatment would consist of applying chemicals to control encroaching woody species, mainly big sagebrush. Before chemicals are applied, the BLM would comply with Department of the Interior regulations. All chemical applications would be preceded by an approved environmental assessment. All applications of pesticides would be under the supervision of a certified pesticide specialist. All applications would be carried out in compliance with the New Mexico pesticide laws.

APPENDIX N

HISTORY OF COAL DEVELOPMENT AND LEASING IN THE AREA

INTRODUCTION

The federal coal leasing regulations (43 CFR 3400) stipulate that only those lands with coal development potential can be identified as acceptable for further consideration for leasing. The regulations also require that the determination of coal development potential be made by the Minerals Management Service (MMS). Since the merger of the BLM and MMS, this function has become the responsibility of the BLM's Branch of Solid Minerals. The following discussion documents the establishment of the coal development potential criteria and rationale used by BLM coal specialists in establishing development potential.

DESCRIPTION OF THE COAL RESOURCES

The area studied for coal development potential is located roughly between the Zuni Reservation and McKinley Mine, between Crownpoint and the Felipe Tafoya Grant, and between Johnson Trading Post and Bisti (see Map D in map pocket of RMP for more detailed locations). A small area north of Farmington near the town of La Plata is also being studied. The area includes the Bisti and De-na-zin Wilderness Areas and the Ah-shi-sle-pah Wilderness Study Area. The area was previously studied in connection with the 1981 BLM Chaco MFP Update for Coal, which was used to develop the San Juan River Regional Coal EIS (USDI, BLM 1984a).

Recoverable coal in the Gallup-Zuni area occurs in the Gibson and Dilco members of the Crevasse Canyon Formation, the Gallup Sandstone, and the Cleary coal member of the Menefee Formation. In the Crownpoint-Felipe Tafoya area, coals occur in the Gibson and Cleary members. In the Bisti-Johnson Trading Post area, surface minable coal occurs in the Fruitland Formation. Coal in the upper Menefee Hogback Mountain zone may occur along the eastern boundary of the Farmington Resource Area, but its development potential is unknown.

Coal in the Gallup area was mined by underground methods from before the turn of the century until about 1950. The coal was used by the AT&SF railroad, smelters and other industries and for home heating. A large number of small slope or "wagon" mines formerly produced coal from both Fruitland and Menefee beds in the Shiprock-Fruitland-La Plata area until about 1950. Production from these mines was primarily for domestic use.

Large-scale leasing and production of federal coal began in the early 1960s with the initiation of mining at McKinley Mine northwest of Gallup and at the San Juan Mine near Fruitland. Construction began at the Navajo Mine on the Navajo Reservation a few years earlier. Both Navajo and San Juan are captive mines serving mine-mouth electrical generating plants. McKinley Mine depends on out-of-state sales to support its operation. These mines, together with the Lee Ranch, Gateway, De-na-zin, and La Plata Mines, are expected to collectively produce over 20 million tons per year for the foreseeable future.

Five additional federal coal leases, as well as 26 Preference Right Lease Applications (PRLAs), occur along the Fruitland outcrop from Bisti to Johnson Trading Post. Several state and fee leases are found along the same trend. A few fee leases have been permitted in the Crownpoint-Felipe Tafoya area (e.g. South Hospah, Lee Ranch), and one or two federal and/or fee leases near Gallup produce small tonnages.

The coal development potential of the San Juan Basin was assessed in 1981-1982 during the San Juan Basin round one leasing effort. Surface and underground coal tracts were delineated and evaluated by MMS personnel using available data to determine the existence, quantity and quality of the coal in place. Of the 50 tracts initially delineated, 39 were carried forward by the Regional Coal Team (RCT) for futher consideration for leasing (see Appendix O, Federal Coal Lands Review Process).

The areas with coal development potential within the lifetime of the RMP are considered to lie in and adjacent to the previously delineated tracts. The 39 coal leasing tracts identified and carried forward in the previous planning effort were re-examined in light of new drilling data acquired since the tracts were originally delineated. In addition, new standards of data adequacy and multiple use conflict assessment were applied in order to more realistically evaluate the leasability of tracts in the foreseeable future. Factors considered in the evaluation included surface minability, coal quantity and quality, proximity to market(s), availability of transportation, proximity to existing mining operations and reasonable economic and socio-political feasibility for future mining. The tables in Appendix O depict those tracts deemed to have coal development potential and the tracts which are believed to have no or marginal development potential during the lifetime of this RMP.

COAL RESERVE BASE

The 25 tracts with coal development potential are estimated to contain 1.016 billion tons of coal recoverable by surface mining methods. The tracts with no near-future development potential are estimated to contain 1.425 billion tons of surface and underground minable reserves and resources. About 62 percent of the coal with development potential is federally owned. Additional data from federal, state and industry exploration may require minor refinement of coal tonnages on tracts during future activity planning.

APPENDIX O

FEDERAL COAL LANDS REVIEW PROCESS

INTRODUCTION

The regulations set forth in Title 43 of the Code of Federal Regulations, Subpart 3400, provide the framework under which the Department of the Interior conducts leasing of the rights to extract federal coal. The objectives of these regulations are to establish policies and procedures for considering development of coal deposits through a leasing system involving land use planning and environmental impact analysis. Additionally, the regulations are intended to ensure that coal deposits are developed in consultation, cooperation, and coordination with the public, state and local governments, Indian tribes, and involved federal agencies.

The Secretary of the Interior may not hold a lease sale unless the lands containing the coal deposits have been included in a comprehensive land use plan and unless the sale is compatible with, and conforms to, any relevant stipulations, guidelines and standards set out in the plan. By regulation, the comprehensive land use plan must also contain an estimate of the amount of coal recoverable by either surface or underground mining operations. Refer to Appendix N for this information.

More detailed information on the tracts can be found in the Final San Juan River Regional Coal EIS (BLM 1984a), in the specific tract delineation reports (1982) available at cost from the Public Room in the BLM State Office in Santa Fe, New Mexico and at the BLM office in Farmington, New Mexico. It should be noted that once all four land-use planning screens for coal (coal development potential, surface owner consultation, unsuitability criteria and multiple-use screens) are applied to the tracts, the remaining federal coal contained therein will be considered acceptable for further consideration for leasing. Then during activity planning, the Department's new rules and guidelines for tract delineation will be applied to the tracts or areas acceptable for further consideration for leasing under the RMP to define revised tracts meeting the guidelines current at the time.

PREVIOUS PLANNING

Planning for coal leasing in the Resource Area has been a lengthy process. The completion of the Chaco/San Juan Management Framework PLan (MFP) for coal in 1982, which considered input from the state, industry, and public sectors, brought forward lands acceptable for further consideration for coal leasing in the San Juan Basin. Then the BLM issued a call for expressions of leasing interest from the public. Concurrent with the planning process, a Regional Coal Team (RCT) was formed in October, 1980, with BLM and state officials, to oversee the leasing process and make recommendations to the Secretary of the Interior regarding leasing actions and regional leasing targets. A series of meetings open to the public was held by the RCT to consider the following: surface owner consent and/or refusals to allow mining, industry interest in leasing and development, energy needs for the region, and the type of geologic and mining information to be used to delineate specific tracts for potential leasing.

The Minerals Management Service (MMS) then prepared tract delineation summary reports that the BLM used to prepare a site-specific analysis (SSA) for each of the 50 tracts that MMS delineated. The RCT analyzed these SSA's and ranked the tracts based on coal economics, and environmental, social and economic impacts. From this analysis, 39 tracts were carried forward as acceptable for further consideration for coal leasing, and the RCT formulated leasing alternatives (including a No Action Alternative), consisting of varying levels of production and combinations of tracts which were assessed in the San Juan River Regional Final EIS (USDI, BLM 1984a).

On May 23, 1985, a notice was published in the Federal Register (Vol. 50, No. 100, pp. 21363 & 21364) calling for coal and other resource information relevant to the preparation of the Farmington Resource Area's RMP. If industry was interested in leasing an area within the Resource Area not evaluated in the MFP, then they were to provide BLM with adequate coal data in order for the Bureau to consider that area for possible leasing. No industry responses were received concerning the notice. It was concluded that this lack of response indicates industry's current interest in leasing coal in the Resource Area is confined to the 39 tracts brought forward for further consideration for leasing in the previous activity planning process. Refer to Table 0-1 for a summary of the number of tracts carried forward for further consideration under each RMP alternative.

TABLE 0-1

COAL TRACTS CARRIED FORWARD BY ALTERNATIVE

Alternative	No. Tracts Carried Forward	No. Tracts Not Carried Forward
A	39	0
B	14	25
C	17	22
D	17	22

APPLICATION OF THE COAL DEVELOPMENT POTENTIAL SCREEN

The coal development potential screen identifies lands suitable for further consideration for leasing for coal development within the planning cycle, which is assumed to be ten to twenty years. The coal development potential screen is being applied to lands within the 39 tracts and where exploration has identified areas adjacent to the Crownpoint Northeast and Lee Ranch West tracts that could have coal development potential. An update on each tract, since the original tract delineation process, and an assessment of the development potential of each tract was completed on a tract-by-tract basis. The factors used in the original ranking of the tracts are the same factors that can influence the tract's potential to be developed during the anticipated lifetime of the RMP. Examples of such factors are depth, thickness, dip and continuity of the coal beds, quality of the data used to project the presence of coal in an area, anticipated mining method, infrastructure, transportation, and anticipated market demand.

Overall, 14 of the original 39 tracts were identified as not having coal development potential. This resulted in a total of 39,665 acres and 837.7 million tons of federal coal being dropped. The 25 tracts with coal development potential contain coal mineable by surface mining methods in the reserve base and/or resource category. Surface mineable coal includes all beds or zones greater than 28 inches thick with more than 20 feet of overburden but not greater than 15:1 stripping ratio with a 350 foot maximum depth limit. Reserve base category coal is the amount of coal in the ground which is of mineable thickness. This is a high confidence term (better than plus or minus 50%). It includes all of the coal zones and beds which, in the geologists' professional judgment, exceed the minimum thickness of 28 inches. This is based upon data which range in quality from very good to acceptably good. This term includes the measured and indicated categories of reserves defined in USGS Bulletin 1450-B, but with the areas of influence from data points extended to greater or shorter distances when justified by professional judgment.

Resource category coal is an estimate of the amount of coal in the ground based on data which are either too distant or too dispersed to correlate coal beds. It is also based on interpretation of data of poor quality, regional geologic inferences, and professional judgment. The range of certainty exceeds plus or minus 50%. Resource figures do not satisfy the PL 94-377 requirement for determining the recoverability or the value of the coal. Hypothetical resources are an extremely rough estimate of the amount of coal in the ground. This is a professional judgment, made with very little or no supporting data, based on a broad knowledge of the geology of the region. Hypothetical resources fail to meet the requirements of PL 94-377 for recoverability and value of the coal.

No underground mineable coal is expected to be developed in the San Juan Basin during the anticipated life of this RMP. Production forecasts from Table 3-7 of the 1985 Federal Coal Management Program, FEIS Supplement, Volume 1, Chapter 3 show that production through the year 2000 would involve only surface mining. In the 1983 New Mexico Coal Market Study by the New Mexico Energy Research and Development Institute, it was assumed that coal produced in the San Juan Basin would be from surface mines only. Table 12 of the 1985 San Juan Basin Update by BXG, Inc. shows that the estimated production costs for underground tracts are among the highest cost tracts in the Basin. Table 13 of the same report ranks the tracts on the basis of cost, price, quality, transportation, ownership, and reserves and shows that the underground tracts are among the least attractive in the Basin. Therefore, all 11 underground mineable tracts have no coal development potential at this time. Refer to Table 0-2 for a summary of acres and tons affected by alternative and screen.

SURFACE OWNER CONSULTATION

The coal regulations (43 CFR 3400) and the Surface Mining Control and Reclamation Act (SMCRA) require that when a Resource Management Plan is prepared the Bureau of Land Management consult with private surface owners whose lands overlie federally owned coal deposits to determine a preference for or against surface mining. When a significant number of surface owners express a preference against surface mining, the coal will be considered for underground mining only (43 CFR 3420.1-4).

Land surface ownership patterns, the number of residences, the application of the 1982 surface owner consultation screen, and written consents and/or refusals to mine affect the development potential of the tracts. The surface owner consultation screen was applied during the Chaco/San Juan MFP and consisted of contacting surface owners in areas of unleased federal coal within the 39 tracts and asking them if they were in favor, opposed, or undecided concerning the leasing of federal coal underneath their surface. The consultation response (if any was given) is essentially an opinion and is not legally binding. No additional consultations were done for the current RMP process.

The number of residences can affect the tract's development potential. A residence is defined as a place where someone lives. A family may not live in a residence all year round as they maintain more than one residence to graze their livestock in different areas during different parts of the year. Since surface owners must be compensated for their residences if their surface is mined, a tract with a large number of residences can be more costly to mine or more difficult to obtain surface owner consent to mine on.

During the activity planning phase of the coal lease sale process, qualified surface owners were given a chance to file a consent to allow mining or a refusal to consent to mining federal coal beneath their surface. A consent or refusal to consent is a legally binding document by which the surface owner either refuses to consent to allow mining or consents to allow mining on his or her surface. All qualified surface owners on a parcel of land must consent to allow mining before a coal lease sale of their parcel can be held. The consents filed were considered as part of the application of the surface owner consultation screen. Tracts with hypothetical and/or marginal coal resources and/or mixed surface ownership involving numerous allottees, the Navajo Tribe, and withdrawals such as PLO 2198 have little chance of being

TABLE 0-2: ACREAGE AND TONS (IN MILLIONS) OF COAL CARRIED FORWARD OR EXCLUDED FROM FURTHER CONSIDERATION BY ALTERNATIVE

	ALT. A		ALT. B		ALT. C		ALT. D	
	Coal Acres	Federal Tons	Coal Acres	Federal Tons	Coal Acres	Federal Tons	Coal Acres	Federal Tons
1. *Coal in original 39 tracts	170,954	1,589.8						
2. Coal excluded due to lack of development potential			39,665	837.7	39,665	837.7	39,665	837.7
3. Coal excluded due to surface owner conflicts			27,956	132.2	27,956	132.2	27,956	132.2
4. Coal excluded due to unsuitability criteria	440	6.7	962	33.5	962	33.5	962	33.5
5. Coal excluded due to multiple-use conflicts			4,137	114.9	1,297	65.8	1,297	65.8
6. **Coal carried forward as acceptable for further consideration for leasing	170,514	1,583.1	57,778	429.8	60,698	478.9	60,698	478.9

*The original 39 tracts comprise 2442.7 million tons of federal and other coal.

**This category includes 2436, 827, 877, and 877 million tons of federal and non-federal coal in Alternatives A, B, C, and D respectively.

developed during the anticipated lifetime of the RMP. Some of these tracts have a significant number of residences on them. Some tracts also have significant "opposed to mining" consultations on them and/or written refusals to consent to mining. Due to application of the surface owner consultation screen, an additional seven tracts will not be carried forward for further consideration for leasing. This resulted in a total of 27,956 acres and 132.2 million tons of coal being dropped. See Table 0-3 for details.

It should be noted that the surface owner consultation screen was applied nonsequentially after the coal development potential screen. This was done to save time and money by not having to apply the unsuitability and multiple use screens to the seven tracts which dropped from further consideration for leasing after the application of the screen.

APPLICATION OF UNSUITABILITY CRITERIA

As required by the Surface Mining Control and Reclamation Act of 1977, the Department of the Interior has developed criteria to determine whether public lands are unsuitable for further consideration for coal leasing. This unsuitability assessment was applied to the 18 coal leasing tracts identified as passing the coal development potential and surface owner consultation screens, above. In the following discussion, the results of the application of each of the unsuitability criteria, exceptions and exemptions are described. Those areas which could only be leased subject to conditions or stipulations resulting from exceptions in the criteria are identified.

Each unsuitability criterion, as defined in 43 CFR 3461.1, is presented below, followed by an analysis. In general, Criteria 1, 2, 3, and 6 refer to land status; Criteria 4, 5, and 8 refer to recreational and natural values; Criterion 7 refers to cultural resources; Criteria 9 through 15 refer to wildlife; Criteria 16 through 19 refer to watershed; and Criterion 20 refers to issues proposed by the state. A total of 962 acres and 33.5 million tons of coal have been determined to be unsuitable using the unsuitability criteria. Refer to Table 0-4.

UNSUITABILITY CRITERIA ANALYSIS

CRITERION NO. 1

All federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and federal lands in incorporated cities, towns, and villages. All federal lands which are recommended for inclusion in any of the above systems or categories by the administration in legislative proposals submitted to the Congress or which are required by statute to be studied for inclusion in such systems or categories shall be considered unsuitable.

ANALYSIS: There are no tracts within the National Park System, National Wildlife Refuge System, National Wilderness Preservation System, or National Wild and Scenic Rivers Systems. Also, there are no National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, or federal lands in incorporated cities, towns, and villages within the areas under consideration. While the Continental Divide National Scenic Trail Comprehensive Plan (USDA, 1985) identifies three treadways across the southeast portion of the Resource Area, none of the treadways crosses any of the coal tracts which have development potential.

EXCEPTIONS: There are no exceptions to the application of this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

TABLE O-3: LAND USE PLANNING SCREENS FOR COMPETITIVE COAL TRACTS

NOTE: The screens were applied in the following order: coal development potential, surface owner consultation, unsuitability criteria and multi-use screen. In an effort to reduce the number of tracts which would require analysis using the unsuitability criteria, tracts with surface owner conflicts were eliminated first. If a tract did not pass a particular screen, the remaining screens were not applied and are shown as N/A (not applicable). See Map D in map pocket.

Tract	Coal Development Potential	Surface Owner Consultation	Unsuitability Criteria (#)	Multi-Use Screen (#)	Result
Bisti #1	Yes	See Below[e]	14[m]	14,(16,17)	Carried Forward in Part
Bisti #4	Yes	No Effect	8,14	12[a],(13)	Carried Forward in Part
Bisti #6/8	Yes	See Below[c]	No Effect[m]	No Effect	Carried Forward
Catalpa Canyon	Yes	See Below[f]	No Effect	No Effect	Carried Forward
Chico Wash South	Yes	See Below[d]	No Effect[m]	14	Carried Forward in Part
Crownpoint East (Revised)	Yes	See Below[e]	No Effect	No Effect	Carried Foward
Divide	Marginal	See Below[d]	No Effect[m]	No Effect	Carried Forward
Gallo Wash #1	Yes	No Effect	No Effect[m]	12[a]	Carried Forward
Kimbeto #2	Yes	No Effect	No Effect	12[a]	Carried Forward
La Plata #1	Yes	No Effect	No Effect[m]	No Effect	Carried Forward
La Plata #3	Yes	No Effect	No Effect	No Effect	Carried Forward
Lee Ranch East	Yes	See Below[d]	No Effect[m]	No Effect	Carried Forward
Lee Ranch Middle	Yes	See Below[d]	14[m]	No Effect	Carried Forward in Part
Lee Ranch West	Yes	See Below[d]	No Effect[m]	No Effect	Carried Forward
Star Lake East #1	Yes	See Below[e]	No Effect[m]	No Effect	Carried Forward
Star Lake West #2	Yes	No Effect	No Effect[m]	No Effect	Carried Forward
Sundance	Yes	See Below[g]	No Effect[m]	No Effect	Carried Forward
Bisti #2	Yes	No Effect	No Effect[m]	4 (10)	Not Carried Forward
Bread Springs #1	Marginal	See Below[b]	N/A	N/A	Not Carried Forward
Bread Springs #2	No[i]	N/A	N/A	N/A	Not Carried Forward
Crownpoint NE	Yes	See Below[b]	N/A	N/A	Not Carried Forward
Gallo Wash #2	No[i]	N/A	N/A	N/A	Not Carried Forward
Gamerco #1 (HC)	Yes	See Below[j]	N/A	N/A	Not Carried Forward
Gamerco #1 (LC)	No	N/A	N/A	N/A	Not Carried Forward
Gamerco #2 (LC)	No[i]	N/A	N/A	N/A	Not Carried Forward
Hogback	Marginal	See Below[b]	N/A	N/A	Not Carried Forward
Hospah #1	Yes	See Below[f]	N/A	N/A	Not Carried Forward
Hospah #2	No[i]	N/A	N/A	N/A	Not Carried Forward
Johnson Trading Post	Marginal	See Below[k]	N/A	N/A	Not Carried Forward
Kimbeto #1	No[i]	N/A	N/A	N/A	Not Carried Forward
La Plata #2	No[i]	N/A	N/A	N/A	Not Carried Forward
La Plata #4	No[i]	N/A	N/A	N/A	Not Carried Forward
Nageezi	No[i]	N/A	N/A	N/A	Not Carried Forward
Pinehaven	No	N/A	N/A	N/A	Not Carried Forward
Samson Lake #1	No[i]	N/A	N/A	N/A	Not Carried Forward
Samson Lake #2/2	No	N/A	N/A	N/A	Not Carried Forward
Star Lake East LC	No[i]	N/A	N/A	N/A	Not Carried Forward
Tah-ha-bah Well	No[i]	N/A	N/A	N/A	Not Carried Forward
Twin Buttes	Marginal	See Below[b]	N/A	N/A	Not Carried Forward

Footnotes For Table 0-3

[a] Multiple-Use Screen No. 12 was applied under Alternative B (Resource Conservation); however, management elected not to apply this screen under Alternative D (Preferred Alternative).

[b] Complex ownership, multiple residences and consultations opposed to mining and/or refusals-to-consent to allow mining resulted in these tracts not being carried forward for further consideration for leasing.

[c] Due to small tract size and complex surface ownership in the Bisti 6 tract, individual lots may need to be leased as bypass tracts subject to surface owner consent.

[d] Majority of the qualified surface owners on federal coal appear to favor mining.

[e] Most of the surface owners failed to respond to consultation.

[f] Only 120 acres of federal coal lies within the 1042 acre tract. Since the surface of the 120 acres is under PLO 2198, and the BIA is not considered a qualified surface owner, no consultation was required.

[g] Consultation efforts showed responses favoring mining, and "no response" results.

[h] Majority of the tract is presently owned by interest favoring mining.

[i] Underground mineable tracts are considered to have no coal development potential for the life of this RMP.

[j] Surface owners never responded to consultation; however, they refused to allow exploration for coal on the tract. Consequently, the tract is not considered to have development potential during the anticipated life of this RMP.

[k] Marginal coal resources, remoteness from markets and refusal of surface owners to consent make near-future development unlikely during the anticipated life of this RMP.

[l] A refusal to consent to allow mining was filed for the majority of reserve base coal in the tract.

[m] While Unsuitability Criteria 2 and/or 3 may be applicable to the tract, the area is being carried forward at this time pending application of the exceptions at coal activity planning.

Footnotes For Table O-3

[a] Multiple-Use Screen No. 12 was applied under Alternative B (Resource Conservation); however, management elected not to apply this screen under Alternative D (Preferred Alternative).

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[d] Majority of the qualified surface owners on federal coal appear to favor mining.

[e] Most of the surface owners failed to respond to consultation.

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[l] A refusal to consent to allow mining was filed for the majority of reserve base coal in the tract.

[m] While Unsuitability Criteria 2 and/or 3 may be applicable to the tract, the area is being carried forward at this time pending application of the exceptions at coal activity planning.

TABLE 0-4 (CONTINUED)

Tract Name	ALT. A Carried Forward Tons Ac /Total/Fed.	ALT. A Excluded (Fed. Only) Ac / Tons	ALT. B Carried Forward Tons Ac /Total/Fed.	ALT. B Excluded (Fed. Only) Ac / Tons	ALT. C Carried Forward Tons Ac/Total/Fed.	ALT. C Excluded (Fed. Only) Ac / Tons)	ALT. D Carried Forward Tons Ac/Total/Fed.	ALT. D Excluded (Fed. Only) Ac / Tons
Bisti #2	1137/ 64.0	0/0	0/0	1137/ 64.0	0/0	1137/64.0	0/0	1137/ 64.0
Bread Spgs. #1	1057/ 1.61*/0.84	0/0	0/0	577/ 0.84	0/0	577/0.84	0/0	577/ 0.84
Bread Spgs. #2	1101/ 12.68*	0/0	0/0	1101/ 12.68	0/0	1101/12.68	0/0	1101/ 12.68
Crownpoint NE	12995/ 87.3/79.3	0/0	0/0	12475/ 79.3	0/0	12475/ 79.3	0/0	12475/ 79.3
Gallo Wash #2	1682/ 75.0/35.0	0/0	0/0	961/ 35.0	0/0	961/ 35.0	0/0	961/ 35.0
Gamerco #1 (HC)	440/ 3.5	0/0	0/0	360/ 3.5	0/0	360/ 3.5	0/0	360/ 3.5
Gamerco #1 (LC)	320/ 3.6/ 2.3	0/0	0/0	160/ 2.3	0/0	160/ 2.3	0/0	160/ 2.3
Gamerco #2 (LC)	4471/ 35.4/16.6	0/0	0/0	2116/ 16.6	0/0	2116/ 16.6	0/0	2116/ 16.6
Hogback	1760/ 5.1*	0/0	0/0	1760/ 5.1	0/0	1760/ 5.1	0/0	1760/ 5.1
Hospah #1	17894/218.0/22.0	0/0	0/0	1593/ 22.0	0/0	1593/ 22.0	0/0	1593/ 22.0
Hospah #2	3079/ 59.0/10.0	0/0	0/0	639/ 10.0	0/0	639/ 10.0	0/0	639/ 10.0
Johnson TP	3423/ 18.3/16.5	0/0	0/0	2714/ 16.5	0/0	2714/ 16.5	0/0	2714/ 16.5
Kimbeto #1	3678/158.0/145.0	0/0	0/0	3358/145.0	0/0	3358/145.0	0/0	3358/145.0
La Plata #2	320/ 26.3	0/0	0/0	320/ 26.3	0/0	320/ 26.3	0/0	320/ 26.3
La Plata #4	520/ 20.2*	0/0	0/0	520/ 20.2	0/0	520/ 20.2	0/0	520/ 20.2
Nageezi	13106/589.0/468.0	0/0	0/0	10546/468.0	0/0	10546/468.0	0/0	10546/468.0
Pinehaven	20367/ 7.0*	0/0	0/0	9680/ 7.0	0/0	9680/ 7.0	0/0	9680/ 7.0
Samson Lake #1	5584/ 30.0/ 26.0	0/0	0/0	4069/ 26.0	0/0	4069/ 26.0	0/0	4069/ 26.0

TABLE 0-4 (CONTINUED)

	ALT. A		ALT. B		ALT. C		ALT. D	
	Carried Forward	Excluded (Fed. Only)	Carried Forward	Excluded (Fed. Only)	Carried Forward	Excluded (Fed. Only)	Carried Forward	Excluded (Fed. Only)
Tract Name	Ac /Total/Fed. Tons	Ac / Tons	Ac /Total/Fed. Tons	Ac / Tons	Ac/Total/Fed. Tons	Ac / Tons)	Ac/Total/Fed. Tons	Ac / Tons
Samson Lake #2/2	2155/ 3.8/ 2.3	0/0	0/0	1875/ 2.3	0/0	1875/ 2.3	0/0	1875/ 2.3
Star Lake East LC	1242/ 43.3	0/0	0/0	1242/ 43.3	0/0	1242/ 43.3	0/0	1242/ 43.3
Ta-ha-bah Well	3078/ 23.0*	0/0	0/0	3078/ 23.0	0/0	3078/ 23.0	0/0	3078/ 23.0
Twin Buttes	8797/ 5.0	0/0	0/0	8477/ 5.0	0/0	8477/ 5.0	0/0	8477/ 5.0
TOTALS	170514/2436/1583.1	440/6.7	57778/826.6/429.8	73648/ 1160	60698/876.6/478.9	70808/1110.9	60698/876.6/478.9	70808/1110.9

*All resources and/or hypothetical resources.
**Absence of a third column indicates that all coal is federal.

CRITERION NO. 2

Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes, or for agricultural crop production on federally owned surface shall be considered unsuitable.

ANALYSIS: Approximately 20.4 miles of rights-of-way for electrical transmission lines, roads, and natural gas pipelines have been identified within the areas under consideration. The lands within these rights-of-way, approximately 164 acres, will not be excluded at this stage. The exceptions listed below will be applied and evaluated during coal activity planning and mine plan stage in consultation with right-of-way holders. See Table 0-5.

EXCEPTIONS: A lease may be issued, and mining operations approved, in such areas if the surface management agency determines that:

1. All or certain types of coal development (e.g. underground mining) will not interfere with the purposes of the right-of-way or easement; or
2. The right-of-way or easement was granted for mining purposes; or
3. The right-of-way or easement was issued for a purpose for which it is not being used; or
4. The parties involved in the right-of-way or easement agree, in writing, to leasing; or
5. It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 3

Federal lands affected by Section 522(e)-(4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or industrial building or public park or within 300 feet of an occupied dwelling.

ANALYSIS: There are no known public buildings, schools, community or institutional buildings, or public parks within the areas of consideration. However, there is one church, one potential cemetery site (on the Lee Ranch West tract), 19 authorized occupied dwellings and approximately 9.5 miles (containing 286.15 acres) of authorized public roads that have been identified within the areas of consideration (See Tables 0-6 and 0-7, respectively.) Lands within 100 feet of the outside edge of these rights-of-way and the cemetery, and lands within 300 feet of these buildings may be unsuitable. Until the exceptions listed below are evaluated at coal activity planning, or additional data are provided on the location of the cemetery site, these areas will not be excluded from further consideration for leasing.

EXCEPTIONS: A lease may be issued for lands:

1. Used as mine access roads or haulage roads that join the right-of-way for a public road.
2. For which the Office of Surface Mining Reclamation and Enforcement has issued a permit to have public roads relocated.
3. If, after pubic notice and opportunity for public hearing in the locality, a written finding is made by the authorized officer that the interests of the public and the landowners affected by mining within 100 feet of a public road will be protected.
4. For which owners of occupied dwellings have given written permission to mine within 300 feet of their buildings.

If these exceptions cannot be applied at coal activity planning, the area(s) will be excluded from further consideration for leasing.

EXEMPTIONS: The application of this criterion is subject to valid existing rights and does not apply to surface coal mining operations existing on August 3, 1977.

TABLE O-5: RIGHTS-OF-WAY LOCATED ON COMPETITIVE COAL TRACTS

Tract Name	Right-of-Way Type	Right-of-Way Serial Number	Dimension (Feet)	Acreage
Bisti #1	Powerline (Apln.)	NM 34119	50 x 14,500	16.64
	Road (BIA)	NM 59095	150 x 285	0.98
Bisti #2	Natural Gas Pipeline	NM 022491	50 x 6,000	6.98
	Natural Gas Pipeline	NM 022522	50 x 6,000	6.89
	Natural Gas Pipeline	NM 33177	50 x 6,000	6.89
	Powerline	NM 12221	20 x 500	0.23
	Powerline	NM 23125	20 x 2,000	0.92
	State Highway 371	NM 29482	100 x 400	0.92
Chico Wash South	County Road (Sandoval)	NM 55456	60 x 11,780	16.2
Divide	Proposed Star Lake Railroad: Atchison-Topeka & Santa Fe Railroad Company	NM 29324	255 x 1,022	5.28
	Natural Gas Pipeline	SF 076515	50 x 2,200	2.53
	Powerline	NM 0273373	30 x 5,280	3.64
Gallo Wash #1	Natural Gas Pipeline	NM 09148	50 x 1,100	1.26
La Plata #1 Bypass	Natural Gas Pipeline	NM 26540	50 x 1,000	1.15
Lee Ranch Middle	Powerline	NM 06342	100 x 5,800	13.32
Lee Ranch West	Powerline	NM 0263365	100 x 12,600	28.93
Star Lake East #1	Powerline	NM 3742	150 x 8,200	28.24
	Natural Gas P/L (Apln.)	NM 18724	50 x 3,200	3.7
	Powerline	NM 65159	50 x 6,000	6.9
Star Lake West #2	Natural Gas Pipeline	NM 042741	50 x 4,500	5.17
	Natural Gas P/L and Telephone Line	SF 066400	70 x 4,500	7.23

TABLE 0-6: OCCUPANCIES ON COMPETITIVE COAL TRACTS WHICH HAVE PASSED THE COAL DEVELOPMENT POTENTIAL AND SURFACE OWNER CONSULTATION SCREENS

Tract Name	Legal Description	Surface Ownership	No. of Residence(s)
Bisti #2	T. 24 N., R. 13 W.,		
	Sec. 31: NE/4	Public/Private	1*
		Subtotal	1
Bisti #6	T. 23 N., R. 13 W.,		
	Sec. 15: NE/4	Indian Allotment	1
	Sec. 17: NW/4	Indian Allotment	1
		Subtotal	2
Divide	T. 15 N., R. 10 W.,		
	Sec. 4: NW/4	Indian Allotment	3
		Subtotal	3
Star Lake East #1	T. 20 N., R. 5 W.,		
	Sec. 35: NW/4	Indian Allotment	6
		Subtotal	6
Sundance	T. 14 N., R. 17 W.,		
	Sec. 4: SW/4	Indian Allotment	2
	Sec. 8: NE/4	Indian Allotment	3
	Sec. 17: NE/4	Tribal Trust	2
		Subtotal	7
		GRAND TOTAL	19

*2 buildings belonging to United Methodist Mission

**No occupancy data are available for the northern portion added to this tract.

TABLE 0-7: TRANSPORTATION FACILITIES LOCATED ON COMPETITIVE COAL TRACTS

Tract Name	Transportation Type & Agency or Company	Serial Number/ Road Number	Dimension (Feet)	Acreage
Bisti #1	Public Road: San Juan County	C-15	60 x 9,000	12.40
Bisti #2	Public Road: State of New Mexico	371	60 x 3,500	4.82
Bisti #6/8	Public Road: State of New Mexico	371	60 x 3,200	4.41
Chico Wash South	Public Road: McKinley County	C-19	60 x 21,400	29.48
Divide	Star Lake Railroad: Atchison-Topeka and Santa Fe Railroad Co.	NM 29324	255 x 1,022	5.28
Lee Ranch East	Public Road: McKinley County	19	60 x 1,100	1.52
Star Lake East #1	Public Road: BIA	47	20 x 2,200	1.01
	Public Road: BIA	47-A	20 x 7,200	3.31
			Total	62.23*

* Total acreage excluded would be 286.15 because lands within 100 feet of the outside line of the right-of-way would also be excluded.

CRITERION NO. 4

Federal lands designated as Wilderness Study Areas shall be considered unsuitable while under review by the administration and the Congress for possible wilderness designation. For any federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a Wilderness Study Area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.

ANALYSIS: There are no proposed or designated Wilderness Study Areas within the areas under consideration.

EXCEPTIONS: None are defined under 43 CFR 3561.1(d)(1).

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 5

Scenic federal lands designated by Visual Resource Management (VRM) analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area.

ANALYSIS: While the adjacent Bisti and De-na-zin Wildernesses contain VRM Class I objectives, there are no areas of federal lands listed as VRM Class I within the areas under consideration.

EXCEPTIONS: None are defined under 43 CFR 3461.1(e)(1).

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 6

Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

ANALYSIS: Other than the Fossil Forest Research Natural Area, there are no federal lands within the areas under consideration that have been permitted or are being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations. This area is more appropriately excluded from further consideration under unsuitability criteria number eight.

EXCEPTIONS: None are defined under 43 CFR 3461.1(f)(1).

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 7

All publicly owned places on federal lands which are included in the National Register of Historic Places shall be considered unsuitable. This shall include any areas that the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, are necessary to protect the inherent values of the property that made it eligible for listing in the National Register.

ANALYSIS: No publicly owned places which are included in the National Register are found within the areas of consideration.

EXCEPTIONS: No exceptions are applicable to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 8

Federal lands designated as Natural Areas or as National Natural Landmarks shall be considered unsuitable.

ANALYSIS: Approximately 360 acres of the Bisti 4 tract lie within the Fossil Forest Research Natural Area. The Fossil Forest was withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing in the San Juan Basin Wilderness Protection Act of 1984 (SJBWP Act). This action prohibits the leasing of the 360 acres as well as the recovery of approximately 11.58 million tons of surface mineable coal reserves. The SJBWP Act directed the BLM to complete, by 1992, a long-range study to determine how best to manage the area's resource values and submit the study to Congress. Following this study, Congress will decide whether to continue the withdrawal or not. If Congress removes the withdrawal, the 360 acres might then be eligible for further consideration for leasing. No other coal tracts are affected by this criterion.

EXCEPTIONS: The exceptions do not apply because the Fossil Forest was withdrawn in an Act of Congress.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 9

Federally designated critical habitat for threatened or endangered plant and animal species, and habitat for federal threatened or endangered species which is determined by the Fish and Wildlife Service (USFWS) and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

ANALYSIS: Based on contracted field inventories (Albee 1982, Ecosphere Environmental Services 1985), and additional inventories conducted by FRA biologists, no federally designated critical habitat for threatened or endangered plant and animal species exists within the areas under consideration. Additionally, there is no habitat which the USFWS considers to be of essential value to scientifically documented threatened or endangered species. At the activity planning stage, additional inventories may be required to determine if the situation in the field has changed.

EXCEPTIONS: No exceptions are applicable to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 10

Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as endangered or threatened shall be considered unsuitable.

ANALYSIS: No critical or essential habitat for state-listed threatened or endangered species has been located within the areas under consideration. This determination was made after consultation with the New Mexico Department of Game and Fish. Concerns raised by NMDGF in a letter dated August 13, 1986 are best addressed by detailed inventories needed for a site specific mine EIS. BLM monitoring efforts to date have located no critical habitat for species of concern to the state (other than the ferruginous hawk). Since the previous coal planning effort, a State Endangered Plant law has been enacted. During an August 8, 1986 meeting concerned with how the RMP should deal with sensitive plant protection, botanists with the N.M. Heritage Program did not indicate that any species presently listed by the state were located in the competitive coal tracts.

Because biological resources can change locations over time and since new data can result in the addition or deletion of species to threatened or endangered species lists, this criterion will need to be reapplied at the activity planning stage.

EXCEPTIONS: No exceptions are applicable to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 11

A bald or golden eagle nest or site on federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be determined in consultation with the USFWS.

ANALYSIS: There are no active bald or golden eagle nests or nesting sites within the areas under consideration. This determination is based on data gathered by BLM biologists during annual raptor monitoring studies in the Chaco coal area. Both helicopter flights and ground surveys are used to search for new nests and verify activity at known nest locations. All coal tracts have been inventoried. The area includes some suitable golden eagle nesting habitat and active nest sites may be established in the future. This criterion should be re-examined at the activity planning stage to determine if new nests have been established in the area.

Also, a golden eagle nest is located on private surface over private coal on the Lee Ranch Middle Tract. The nest was located in 1983 and has not been active since monitoring began. A tentative buffer zone around the nest encompasses 230.6 acres over 4.1 million tons of coal within the tract. If the federal government acquires this coal as part of the McKinley County coal exchange it will have to be determined before the coal can be leased if the nest is to be considered active. Yearly monitoring of the nest will continue. If the nest is active, the criterion will have to be applied and the buffer zone area declared unsuitable or an exception implemented.

EXCEPTIONS: A lease may be issued if one or all of the following conditions are met:

1. The lease can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season.
2. The BLM, with the concurrence of the USFWS, determines that the golden eagle nest(s) will be moved.
3. Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 12

Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering shall be considered unsuitable.

ANALYSIS: There are no golden or bald eagle roost or concentration areas in the tracts under consideration. This determination is based on data gathered by BLM biologists during annual raptor monitoring studies in the Chaco coal area. Both helicopter flights and ground surveys are used to search for new roosts and verify activity at known roost locations. All coal tracts have been inventoried.

EXCEPTIONS: No exceptions are applicable to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 13

Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the U.S. Fish and Wildlife Service.

ANALYSIS: No active cliff nesting sites for falcons were found within the tracts. Therefore, no buffer zones are required at this time. This determination is based on data gathered by BLM biologists during annual raptor monitoring studies in the Chaco coal area. Both helicopter flights and ground surveys are used to search for new nests and verify activity at known nest locations. All coal tracts have been inventoried. As nest site locations can change from year to year, this criterion will have to be re-examined at the activity planning stage.

EXCEPTIONS: No exceptions are applicable to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 14

Federal lands which are high priority for migratory bird species of high federal interest on a regional or national basis, as determined jointly by the surface management agency and U.S. Fish and Wildlife Service, shall be considered unsuitable.

ANALYSIS: Application of this criterion during the San Juan River Regional Coal planning effort declared 360 acres of non-BLM surface on the Bisti No. 4 tract unsuitable for surface mining due to the presence of a ferruginous hawk nest. This area contains approximately 5.09 million tons of federal coal. Since that planning effort, annual monitoring conducted by BLM biologists has located two additional ferruginous hawk nests in or adjacent to the proposed tracts. One nest and its buffer zone in the Lee Ranch Middle Tract covers 234 acres of private surface inside the tract and excludes 0.6 million tons of federal coal. An additional 2.7 million tons of private coal are underneath the buffer zone. If the federal government acquires this coal as part of the McKinley County coal exchange, it will have to be determined before the coal can be leased if the nest is to be considered active. The other nest is adjacent to the Bisti No. 1 Tract. The buffer zone extends into the tract and covers about 130 acres over 16.2 million tons of coal. The Bisti 1 nest has been active every year since its construction in 1984. The Lee Ranch nest was last used in 1984. Monitoring of these nests will continue in order to determine if a re-evaluation of this criterion is needed in the future should there be a change in the field situation.

Continued monitoring is needed to determine activity of known nests. New nests may be constructed in or near the tracts. Therefore, this criterion will need to be reapplied at the activity planning stage.

Although mountain plover and white-faced ibis have been observed in the Resource Area, none of the proposed tracts contain high priority habitat for these species.

EXCEPTIONS: No exceptions will be applied to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 15

Federal lands which the surface management agency and the state jointly agree are fish and wildlife habitat for resident species of high interest to the state and which are essential for maintaining these priority wildlife species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include:

1. Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken;
2. Winter ranges most critical for deer, antelope, and elk; and
3. Migration corridors for elk.

A lease may be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

ANALYSIS: There are no federal lands within the areas under consideration which contain habitat essential for maintaining resident species of high interest. This determination was made after consultation between the BLM and the New Mexico Department of Game and Fish (NMDGF). In the letter dated August 13, 1986, NMDGF did not ask that any areas be declared unsuitable under this criterion. The Department did express concern that appropriate mitigative measures be implemented if mining were to occur in elk and deer wintering ranges north of Mount Taylor.

EXCEPTIONS: None are defined under 43 CFR 3461.1(0)(1).

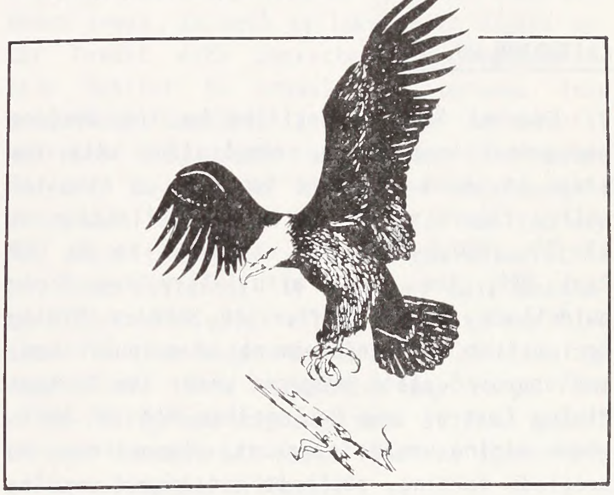
EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 16

Federal lands in riverine, coastal and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.

ANALYSIS: Approximately 4,978 floodplain acres on surface mineable coal tracts are identified in Appendix B-1 of the San Juan River Regional Coal EIS, 1984. Based on recent tract boundary changes on the Lee Ranch West tract, an additional 30 acres of floodplain is added to the previous total of 412 acres. Revisions in the Chico Wash South tract remove 52 acres of floodplain from the previous total of 315 acres.

EXCEPTIONS: For Criterion 16, special stipulations will be included in the mine plan to ensure that coal mining can be undertaken without substantial threat of loss to people or property. These stipulations will be applicable to all proposed competitive lease tracts. Because of this, no tracts will be considered unsuitable at this stage. This criterion will be re-applied at the coal activity planning stage.



CRITERION NO. 17

Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

ANALYSIS: There are no federal lands in the areas under consideration that have been committed to use as municipal watersheds.

EXCEPTIONS: No exceptions will be applied to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 18

Federal lands with National Resource Waters as identified by states in their water quality management plans, and a buffer zone of federal lands one-fourth mile from the outer edge of the far banks of the water, shall be unsuitable.

ANALYSIS: No federal lands with National Resource Waters have been identified by the state of New Mexico in the areas under consideration.

EXCEPTIONS: No exceptions will be applied to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 19

Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in 43 CFR 3400.0-5(a) the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved state programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

ANALYSIS: At this stage there are insufficient data to identify alluvial valley floors. Since hydrologic and geomorphic data are developed at the activity planning or mine plan stage, application of this unsuitability criterion will be made at that time.

EXCEPTIONS: No exceptions will be applied to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

CRITERION NO. 20

Federal lands in a state to which is applicable a criterion (1) proposed by that state, and (2) adopted by rulemaking by the Secretary, shall be considered unsuitable.

ANALYSIS: The state of New Mexico has not proposed any other criteria.

EXCEPTIONS: No exceptions will be applied to this criterion.

EXEMPTIONS: No exemptions to this criterion are applicable to the areas under consideration.

MULTIPLE USE CONFLICT ANALYSIS

The multiple-resource use screen is intended to eliminate lands from further consideration for coal leasing if other resources on those lands are determined to be locally important or unique. In general, a multiple-use trade-off is appropriate when one land use (e.g. mining) would be likely to preclude or limit use of other valuable resources not otherwise covered by the 20 unsuitability criteria. The readjustments at this stage in the land use planning process are made to accommodate unique, site-specific resource values clearly superior to coal but which are not included in the unsuitability criteria. A prime recreation site or campground might be an example.

Coal tracts identified in previous planning have been studied for multiple use conflicts in the San Juan River Regional Coal EIS (USDI, BLM 1984a). In addition, the present planning effort weighs the effects of additional multiple-use screens on tracts which have passed the three previously mentioned screens. The results of these analyses are summarized below. It should be noted that additional inventory for cultural resources, raptor nests, etc., could require the reapplication of multiple-use and unsuitability criteria screens at coal activity planning. A total of 1,297 acres and 65.8 million tons of coal have been determined unacceptable under the multiple-use screens (see Tables O-2 and O-4) for Alternatives C and D. Under Alternative B a total of 3,897 acres and 131.6 million tons of coal were declared unacceptable.

MULTIPLE-USE SCREENING ANALYSIS

NO.1: WETLANDS

Wetlands larger than one acre will be considered unacceptable.

DEFINITION: BLM Manual 6740 defines wetlands as follows: "**Wetlands or wetland habitat:** permanently wet or intermittently flooded areas where the water table (fresh, saline, or brackish) is at, near, or above the soil surface for extended intervals, where hydric wet soil conditions are normally exhibited, and where water depths generally do not exceed two meters. Vegetation is generally comprised of emergent water-loving forms (hydrophytes) which require at least a periodically saturated soil condition for growth and reproduction. In certain instances vegetation may be completely lacking. Marshes, shallows, swamps, muskegs, lake bogs, and wet meadows are examples of wetlands."

These are poorly drained areas, as a rule having impervious soils (no substantial ground water recharge). They may on occasion be in contact with the ground water system, but for the most part they receive water from precipitation and overland runoff.

The above definition will be used for the Multiple Use Screen with the following modification. Marshes, shallows, swamps, and wet meadows less than one acre will not be considered under this definition. It will not include salt grass flats associated with intermittent arroyos or small seasonally flooded livestock reservoirs that do not support emergent vegetation.

ANALYSIS: There are no wetlands larger than one acre in any of the areas under consideration. This analysis is based on helicopter and ground surveys conducted on all tracts in 1982 and 1983 as part of the San Juan River Regional Coal Planning effort (Chaco MFP Amendment area) and the McKinley County coal exchange proposal.

NO. 2: RIPARIAN HABITAT

Riparian Habitat (see definition) will be considered unacceptable.

DEFINITION: Manual 6740 defines riparian habitat as follows: a specialized form of wetland restricted to areas along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, also, periodically flooded lake and reservoir shore areas, as well as lakes with stable water levels with characteristic vegetation. This habitat is transitional between true bottomland wetlands and upland terrestrial habitats and, while associated with water courses, may extend inland for considerable distances. Soils of the riparian habitat may not exhibit typical wet soil characteristics of other wetlands. If not, wet soil characteristics will exist close enough to the surface for the water to be used directly by vegetation. This vegetation may range from water-loving hydrophytes (such as pond weeds) through terrestrial forms (such as sycamores, cottonwoods, and willows)."

In these areas soil and soil structure permit ground water movement both vertically and horizontally. Ground water recharge can occur.

For the purpose of the Multiple Use Screen the above definition will be used with the following condition. Isolated cottonwood trees, tamarisk stands less than one acre, and desert arroyos with greasewood, rabbit brush, or four-wing saltbush borders will not be considered as riparian habitat. They are more properly treated as a special habitat feature.

ANALYSIS: Using the above definition, there is no riparian habitat in any of the areas under consideration. This analysis is based on helicopter and ground surveys conducted on all tracts in 1982 and 1983 as part of the San Juan River Regional Coal Planning effort (Chaco MFP Amendment Area) and the McKinley County coal exchange proposal.

NO. 3: PROPOSED T OR E SPECIES

Habitat supporting populations or individuals of species proposed for federal or state listing as threatened or endangered will be considered unacceptable.

ANALYSIS: There are no proposed T or E species within any of the areas under consideration. This analysis is based on inventory data obtained since 1981, helicopter and ground surveys conducted since 1982 and discussions with U.S. Fish and Wildlife Service and N.M. Heritage Program botanists.

NO. 4: FEDERAL LANDS CONTIGUOUS TO THE NATIONAL TRAIL SYSTEM AND THE NATIONAL WILDERNESS SYSTEM

Federal lands within one-half mile of units of the National System of Trails, and the National Wilderness Preservation System, shall be considered unacceptable.

ANALYSIS: Elimination of the 1,137 acre Bisti No. 2 Tract (adjacent to Bisti Wilderness) would remove 64 million tons of coal reserve base from potential development.

EXCEPTION: The Bisti Tract 6/8 was not considered as it is extremely small and is separated from the Bisti Wilderness by the De-na-zin Mine. Ah-shi-sle-pah WSA and the Continental Divide National Scenic Trail lie within one-half mile of underground coal tracts; however, these tracts have no coal development potential during the life of this RMP, and are not being carried forward for further consideration for leasing.

NO. 5: CLASS II VISUAL RESOURCE MANAGEMENT (VRM) AREAS

Areas that contain VRM Class II objectives shall be considered unacceptable for surface coal mining.

ANALYSIS: There are no competitive coal tracts that lie within areas that contain VRM Class II management objectives.

NO. 6: AREAS OF SIGNIFICANT RECREATION USE OR OPPORTUNITY

Special Recreation Management Areas (SRMA) and areas that contain Recreation Opportunity Spectrum (ROS) management objectives for Primitive or Semi-primitive Non-motorized Classes (see Appendix F), shall be considered unacceptable for surface coal mining.

ANALYSIS: There are no competitive coal tracts that lie within SRMA's or areas that contain ROS Primitive and Semi-primitive Non-motorized Class management objectives.

NO. 7: SOLE - SOURCE AQUIFERS

Areas formally designated by the EPA as a sole-source aquifer shall be considered unacceptable.

ANALYSIS: The sole-source aquifer program under the Safe Drinking Water Act permits citizens to petition EPA for designation of an area as a sole-source aquifer if it is the principal water supply. If so designated, EPA reviews all federally assisted projects which may affect the quality of ground water in the sole-source aquifer.

There have been no sole-source aquifer designations in the San Juan Basin under this program to date.

NO. 8: AIR QUALITY

Lands within 15 miles of air quality Class I Prevention of Significant Deterioration (PSD) areas shall be considered unacceptable.

ANALYSIS: Under the PSD regulations, the San Pedro Parks Wilderness Area (managed by the U.S. Forest Service), and the Mesa Verde National Park are designated as Class I areas for air quality. Because of the distance of these Class I areas from the areas under consideration, and the relatively short distance total suspended particulates (TSP) will travel from mining operations (generally less than 20 kilometers), there will be no impact.

NO. 9: RESERVED FEDERAL LANDS

All federal lands included in the following land systems or categories shall be considered unacceptable: Federal Aviation Administration facilities; all site withdrawals (administrative, school, etc.) for federal agencies and leases acquired under the Recreation and Public Purposes Act.

ANALYSIS: There are no federal lands within the areas under consideration which are reserved for Federal Aviation Administration facilities, site withdrawals (administrative, school, etc.) for federal agencies, or leases acquired under the Recreation and Public Purpose Act.

EXCEPTION: A lease may be issued and mining operations approved if, after consultation with the affected federal agency or lessee, the surface management agency determines that the facility will not be adversely affected by all or certain stipulated methods of coal mining.

NO. 10: NAVAJO INDIAN IRRIGATION PROJECT

All agricultural lands within the Navajo Indian Irrigation Project (NIIP) shall be considered unacceptable.

ANALYSIS: Other than 581.32 acres of the Bisti No. 2 Tract, no other tracts are within the Navajo Indian Irrigation Project. The entire Bisti No. 2 Tract has already been dropped based on Multiple-Use Screen No. 4.

NO. 11: RIGHT-OF-WAY WINDOWS OR CORRIDORS

Federal lands which have been committed by the surface management agency to use as rights-of-way windows or corridors shall be considered unacceptable.

ANALYSIS: No federal lands which have been designated, or recommended for designation, as Rights-of-Way Windows or Corridors are within the areas under consideration.

NO. 12: MINING OPERATIONS DEPENDENT ON PRLAS

A coal tract adjacent to an area included in a preference right lease application (PRLA) or within a logical mining unit which includes lands covered by a PRLA shall not be considered acceptable for leasing unless the tract, either alone or when combined with adjacent lands already under federal lease, contains sufficient quantities of coal to support an economically viable coal mining operation.

ANALYSIS: A coal tract adjacent to lands included in a pending PRLA would not be considered for leasing unless there are reasonable prospects that a viable mining operation can be developed on that tract without reliance on the coal contained in the PRLA lands. Application of this screen results in the following three tracts not being carried forward for further consideration for leasing: Bisti No. 4, Gallo Wash No. 1 and Kimbeto No. 2.

While it is possible that disposition of PRLAs will remain tied up in legal action for the life of this plan, management has elected to apply this screen only in the Resource Conservation Alternative (Alternative B). The above-mentioned tracts are carried forward for further consideration for leasing under the Preferred Alternative.

NO. 13: PALEONTOLOGICAL RESOURCES

Any paleontological resources which are type localities for fauna that define regional or larger time-stratigraphic units, and special management areas set aside for their paleontological values, shall be considered unacceptable.

ANALYSIS: This multiple use screen does not apply to any areas under consideration except the Fossil Forest, which is already covered in coal Unsuitability Criterion No. 8.

NO. 14: CULTURAL RESOURCE SITES ELIGIBLE FOR INCLUSION ON THE NATIONAL REGISTER OF HISTORIC PLACES

All publicly owned places on federal lands which have been determined eligible for the National Register of Historic Places shall be considered unacceptable. This shall include areas that the surface managing agency determines, after consultation with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation, are necessary to protect the inherent values of the property that made it eligible for the National Register.

ANALYSIS: Recent consultation with the New Mexico SHPO has fully documented National Register eligibility for 228 sites on the tracts being evaluated as having coal development potential. Previous consultation was completed in 1983 as part of the evaluation of impacts for the SJRRC/EIS. At that time the Tanner Lake Battlefield (80 acres and 1.65 million tons of federal coal) located in the Bisti No. 1 Tract and the Azabache Station (80 acres and 0.2 million tons of federal coal) located in the Chico Wash South tract were found unacceptable. Other sites (see Table 0-8) were found potentially eligible because they may yield information important in history or prehistory.

Cultural resource inventories covering at least 10 percent of tracts proposed for competitive leasing have been completed. Exceptions are Chico Wash South and Kimbeto No. 2 tracts. Sites were identified and determined eligible to the National Register but have not been listed and it is unlikely that formal nominations will be completed. This 10 percent inventory establishes that adverse effects could be mitigated through data recovery and that sites found in the tracts do not warrant in-place preservation. This determination complies with the coal management PMOA between the BLM, OSM, USGS, and the Advisory Council on Historic Preservation. Therefore, sites eligible because of their potential to yield information in history or prehistory are considered as exceptions to this multiple-use screen.

Prior to approval of surface disturbing activities, Class III inventories will be conducted and subsequent mitigation of impacts will be required on all National Register eligible sites. Consultation between BLM, BIA, OSM, and SHPO will occur to determine if newly recorded sites are eligible for inclusion in the National Register. If adequate mitigating measures for impacts to these sites cannot be developed, the sites and appropriate buffer zones will not be surface mined.

EXCEPTIONS: Coal mining may be allowed if, after consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation, measures for mitigation of impacts are approved by the surface managing agency and, where appropriate, the agency or landowner with jurisdiction over the site(s).

NO. 15: CHACO CULTURE NATIONAL HISTORICAL PARK

No new competitive coal tracts will be leased within three miles of the exterior boundary of the Chaco Culture National Historical Park.

ANALYSIS: None of the competitive coal tracts being evaluated in this RMP are within three miles of the exterior boundary of the Chaco Culture National Historical Park.

NO. 16: NATIVE AMERICAN AREAS OF CULTURAL SIGNIFICANCE

Federal lands containing specific sites which have been identified as sacred and essential to the practice of traditional Native American religion shall be considered as unacceptable. This shall also include any areas that the surface management agency determines, after consultation with the Navajo Nation Historic Preservation Officer or ap-

TABLE 0-8: CULTURAL RESOURCE INVENTORY AND DETERMINATIONS OF ELIGIBILITY ON COMPETITIVE TRACTS WITH COAL DEVELOPENT POTENTIAL*

Tract Name	Percent Inventory	Sites Eligible	Sites Not Eligible	Total Sites	Acres Unacceptable
Bisti 1	100%	68	12	80	80
Bisti 2	58%	20	0	20	
Bisti 4**	7%	5	2	7	
Bisti 6/8**	0%	2	0	2	
Catalpa Canyon	100%	0	0	0	
Chico Wash South***	1%	7	0	7	80
Crownpoint East	10%	1	4	5	
Divide	26%	26	5	31	
Gallo Wash 1	10%	0	0	0	
Kimbeto 2***	1%	3	0	3	
La Plata 1	15%	7	0	7	
La Plata 3	13%	13	0	13	
Lee Ranch East	10%	8	0	8	
Lee Ranch Middle	54%	26	1	27	
Lee Ranch West	45%	36	3	39	
Star Lake East 1	16%	19	4	23	
Star Lake West 2	10%	1	0	1	
Sundance	61%	14	1	15	
TOTAL		256	32	288	160

*Percent inventoried and total sites are for federal surface and/or lands overlying federal coal.

**Due to the high level of inventory on surrounding acreage the BLM, in consultation with the State Historic Preservation Office, has determined that a 10 percent sample is not necessary at this time.

***This tract has been carried forward for further consideration for leasing pending completion of the 10% minimum cultural resource inventory. If the minimum inventory is not completed at the coal activity planning stage, the tract will not be carried forward for further consideration for leasing. Any cultural resources identified during the inventory will be examined at coal activity planning using the unsuitability criteria and multiple-use screens.

propriate tribal representative, as necessary to protect the inherent values of the area and to ensure that the natural character of the area remains unaltered so it may continue to be used for prayer or other religious practices.

ANALYSIS: During 1986 the Bureau of Land Management commissioned an ethnographic study (York and Winter 1986) of 22 coal tracts in order to obtain more information on areas having cultural significance to Native Americans. While the following results have been obtained from the study, additional data are forthcoming on the Sundance, Crownpoint East (revised) and Catalpa Canyon tracts. Information obtained from the ethnographic study on these three tracts will be examined using all applicable unsuitability criteria and multiple-use screens either during the Final RMP/EIS or during coal activity planning.

The Tanner Lake Battlefield is located in the Bisti 1 tract. The SJRRC EIS recommended exclusion of 80 acres from mining based on the area's association with an historic battle and burials resulting from the battle. The site is also eligible to the National Register of Historic Places and is excluded under Multiple Use Screen No. 14. The exclusion of 80 acres and 1.65 million tons of federal coal for protection of the Tanner Lake Battlefield is carried forward.

A Yei' bichei site is also located in the Bisti 1 tract (York and Winter 1986). The Yei' Bichei, Night Way, or Night Chant is a curing ceremony. This site was constructed by a traditional ceremonial practitioner and the ceremony was conducted by a medicine man from the Red Rock area west of Shiprock, New Mexico (York 1984). The ceremony took place approximately 40 years ago. The Yei' Bichei site will not be excluded from leasing at this time. If the tract is eventually leased, the lessee will consult with traditional Navajo religious specialists to determine appropriate mitigation measures and will bear all costs incurred in the implementation of these measures.

An offering site known as Eagle Hatching Mesa is located within the boundary of the Star Lake East tract on state surface with state minerals. The site may be subject to mining associated with the federal tract. The State of New Mexico may take this offering site into consideration prior to leasing. Consequently, no federal lands will be excluded from further consideration for leasing in the Star Lake East No. 1 competitive tract at this time.

Two gathering areas in the Divide tract and one gathering area in the Catalpa Canyon tract have been identified in a recent ethnographic study (York and Winter 1986). In addition, five gathering areas were identified in the Bisti 4 tract by the SJRRC EIS. These gathering areas will also not be excluded from further consideration for leasing at this time. However, if the tract is eventually leased, the lessee will consult with traditional Navajo religious specialists and the Medicine Men's association to ensure access to the same plant species outside the coal lease, and to develop other appropriate mitigating measures. The lessee will bear all costs incurred in implementing these measures.

NO. 17: SINGLE GRAVE SITES

Federal lands containing single grave sites identified by family members, through ethnographic research, or by cultural resource inventory, and after consultation with the appropriate tribal representative, shall be considered unacceptable.

ANALYSIS: A recent ethnographic study (York and Winter 1986) has identified one Navajo gravesite in the Bisti 6/8 tract. While the SJRRC EIS identified three grave sites in the Bisti 6/8 tracts, the locations of these additional burials are not known at this time. The SJRRC EIS also identified grave sites in the Bisti 1 tract. These burials are associated with the Tanner Lake Battlefield (80 acres) which has already been excluded from further consideration under Multiple Use Screen 14.

Only the Tanner Lake Battlefield area will be excluded from further consideration at this stage. All other grave sites will be evaluated at coal activity planning utilizing the exception below.

EXCEPTION: Coal mining may be allowed if, after consultation with the appropriate tribal representative and/or family representative, consent to remove and rebury the remains prior to surface disturbance is agreed upon as an accepted protective measure. The U.S. Department of Interior and Navajo Nation policies and procedures concerning the protection of cemeteries, gravesites, and human remains would be followed where applicable. If families agree to reinterment of the deceased, the lessee will pay all mitigation costs including, but not limited to, excavation, reinterment, and performance of ceremonies.

SUMMARY

Table 0-9 summarizes the effects of foreseeable impacts on the availability of coal for competitive leasing in the San Juan Basin. It does not address similar impacts to PRLAs and to already leased coal.

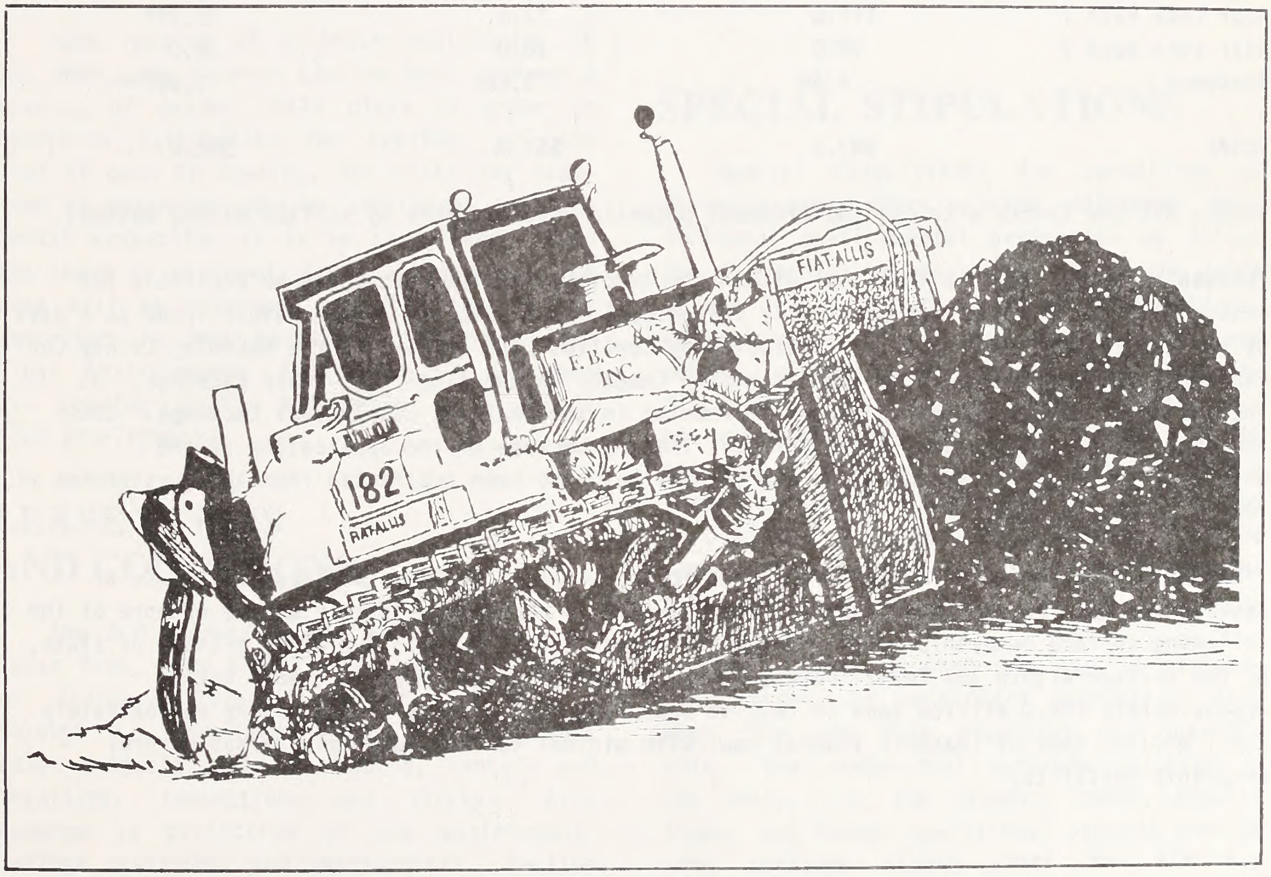


TABLE O-9: TRACTS CARRIED FORWARD FOR FURTHER CONSIDERATION FOR LEASING UNDER ALTERNATIVE D

Reserve Base/Resource (Millions of Tons)

Tract	Total	Federal	*Leasable Federal
Bisti 1	127.9	127.9	0.4**
Bisti 4	35.8	34.9	10.0**
Bisti 6/8	1.0	1.0	0.26**
Catalpa Canyon	8.8	0.4	0.4**
Chico Wash South	24.0	23.0	22.8
Crownpoint East	9.8	6.8	6.8**
Divide	39.3	12.3	12.3
Gallo Wash 1 Bypass	10.6	10.6	10.6**
Kimbeto 2	20.3	20.3	20.3
La Plata 1 Bypass	6.6	6.6	6.6
La Plata 3	7.1	4.5	4.5
Lee Ranch East	34.7	16.0	34.7
Lee Ranch Middle	240.0	86.0	41.0
Lee Ranch West	238.0	101.0	58.7
Star Lake East 1	117.0	72.9	72.9**
Star Lake West 2	28.0	28.0	28.0
Sundance	4.68	3.685	3.685**
TOTAL	**953.6**	**555.9**	**334.0**

Note: All the tracts with coal development potential are mineable by surface mining methods.

*Leasable federal coal is that coal within the tract boundaries that could be available for future leasing. It excludes previously leased coal, coal selected by the Navajo Tribe as a part of the Navajo-Hopi Selection, coal selected by Cerillos Land Company in the McKinley County Coal Exchange, and coal selected by Sunbelt Mining Company in the Bisti Coal Lease Exchange. It includes coal the government proposes to receive in the McKinley County Coal Exchange. Coal that may not be further considered for coal leasing because of the application of the unsuitability criteria and multiple use screens has also been subtracted from these estimates of leasable federal coal.

**Approximately one-third of coal remaining in these tracts could be difficult to lease or develop due to a complex non-federal surface ownership consisting largely of one or more of the following surface ownership types: Indian Allotted, Navajo Tribal, PLO-2198, private or state, or the surface within the Fossil Forest Research Natural Area. These 8 tracts total approximately 105.0 million tons of reserve base/resource category coal, leaving approximately 229.1 million tons of leasable federal coal with minimal surface ownership versus mineral ownership conflicts.

APPENDIX P

OIL AND GAS LEASING

INTRODUCTION

The leasing process begins when an interested party applies for an oil and gas lease at the BLM New Mexico State Office (NMSO) in Santa Fe. Leases may be acquired non-competitively over-the-counter or through simultaneous lease drawing, or competitively through the submission of bids. Competitive leasing is required for lands situated within the boundaries of a known geologic structure (KGS).

Upon receipt of a lease application in the NMSO, the Mineral Leasing Unit reviews a catalog of master title plats in order to determine suitability for leasing. If the area is open to leasing, the plats are examined to determine whether additional environmental protection is to be stipulated. When the lease is reviewed, it is assumed that the area will be developed and that the impacts described in the Farmington Resource Area Final Environmental Assessment For Oil and Gas Leasing (USDI, BLM 1982b) will result from development.

LEASE TERMS AND CONDITIONS

The BLM's combined oil and gas offer and lease form, Form 3100-11, covers a wide range of standard stipulations in Sections 2 through 9. The lease terms and conditions cover subjects such as bonding, rentals and royalties, inspections and safety. Also covered is protection of the environment, surface resources, and improvements. Section 6 of the lease terms establishes the general requirements for conduct of operations. This section provides authority for the modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures to minimize adverse environmental impacts. It specifically requires that the lessee contact the lessor prior to disturbing the surface and specifies that the lessee may be required to complete minor inventories or short-term special studies. Section 6 was intended to render many lease attachments unnecessary, such as the Surface Disturbance Notice and the standard Cultural Resources Stipulation. Section 10 refers to the additional stipulations that may be attached as needed.

SPECIAL STIPULATIONS

Special stipulations are conditions of lease issuance which provide additional, more stringent environmental protection by allowing for denial of operations within the terms of the lease contract. Without stipulations, operations can only be modified but not denied (except under certain specific, nondiscretionary statutes). Stipulations will be used whenever mitigating measures to be enforced by the United States will deprive a lessee of lease rights granted. Because of this effect on lease rights, lessees must be made aware of and acknowledge these stipulations prior to leasing.

BLM policy is that the use of stipulations should be considered appropriate only when they are both necessary and justifiable. The contractual controls existing in the lease (i.e. the standard terms, regulations, and formal operational orders) provide some latitude within which the BLM may require modification of the siting, design, and timing of operations on leaseholds, and provide for the BLM to specify interim and final reclamation measures. They do not, however, allow the BLM to require modifications to proposed operations that would prevent economic extraction of otherwise commercial deposits of oil and gas. Therefore, if a lessee is to be prevented from extracting oil and gas, then stipulations are necessary and are to be used. A stipulation is justifiable if there are resources, values, uses, and/or users present that cannot coexist with oil and gas operations and cannot be adequately managed and/or accommodated on other lands for the duration of oil and gas operations. In such cases, stipulations are justifiable and are to be used.

Figure P-1 represents the actual stipulations approved for use in the Farmington Resource Area. The current list of approved stipulations, their content and wording, the area involved, and the stipulation's impact on oil and gas development will be modified and defined during activity planning. This RMP attempts only to identify areas where surface resources, values, and users will require special management. Specific stipulations not identified in this plan can be justified efficiently during activity planning, largely by reference to this plan. Reference can be made either in an environmental assessment or in a separate worksheet accompanying the categorical exclusion review that leads to lease issuance.

Table P-1 represents a summary of acreage affected by one or more stipulations under existing management practices. Tables presenting oil and gas management categories vs. resource potential are located in the Chapter 3 minerals section of each alternative.

TABLE P-1: SUMMARY OF ACREAGES AFFECTED BY SPECIAL STIPULATIONS UNDER THE CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

Stipulation Number	Reason for Protection	Affected Acreage
New Mexico 6	Continental Divide Trail Route	*31,200
New Mexico 7	Wilderness	7,040
Farmington 1	Raptor Nests (Seasonal)	10,210
Farmington 3	Bald Eagle Roosts	11,491
Farmington 4	Big Game Habitat, Bald Eagle Roost Buffer Area (Seasonal)	104,789
Farmington 6	Bisti Wilderness	7,840
Farmington 7	De-na-zin Wilderness	25,080
Farmington 8	Jones Canyon	3,520
Farmington 9	Rattlesnake Canyon	7,760
Farmington 10	Negro Canyon	4,160
Farmington 11	Carracas Mesa	4,520
Farmington 12	Simon Canyon	2,920
Farmington 13	Recreation and Scenic Values	12,840
Farmington 14	Cultural Values	45,760
Farmington 16	Threatened or Endangered Species	8,833

*The acreage affected by this stipulation was delineated prior to the development of The Continental Divide National Scenic Trail Comprehensive Plan (USDA 1985) and will be adjusted when the location of the trail is finalized.

FIGURE P-1: OIL AND GAS (FLUID MINERAL) LEASING STIPULATIONS APPLIED TO LEASES IN THE FARMINGTON RESOURCE AREA

Farmington No. 1

In order to protect important seasonal wildlife habitat (birds of prey nests), exploration, drilling, or other development activity will be allowed only during the period from July 1 to February 1. This limitation does not apply to maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by the authorized officer of the federal surface management agency. Lands within the leased area to which this stipulation applies are described as follows:

[Description of affected lands]

Farmington No. 3

No occupancy or other activity on the surface of the following described lands is allowed under this lease in order to protect critical bald eagle use areas.

Lands within leased area to which this stipulation applies are described as follows:

[Description of affected lands]

Farmington No. 4

In order to protect important seasonal wildlife habitat (buffer zone around bald eagle roost sites, critical big game winter range), exploration, drilling and other development activity will be allowed only during the period from April 1 to December 1. This limitation does not apply to maintenance and operation of producing wells. Exception to this limitation in any year may be specifically authorized in writing by the authorized officer of the federal surface management agency. Lands within the leased area to which this stipulation applies are described as follows:

[Description of affected lands]

Farmington No. 8

No leasing.

The San Juan Management Framework Plan was completed on August 17, 1979. One of the recreation objectives developed in this planning effort concerned the development of a recreation management plan for the Jones Canyon Area (T.32N., R.13W.). A portion of the MFP decision (Recreation 1.1) concerning this objective was not to issue oil and gas leases in the area prior to a determination on the status of ACEC designation for the Jones Canyon area.

The Jones Canyon Area has botanical and wildlife viewing opportunities and some primitive area values. This area is also a portion of the critical deer winter range identified in Wildlife recommendation 2.21.

FIGURE P-1 (Continued)

Farmington No. 9

No leasing.

The San Juan Management Framework Plan was completed on August 17, 1979. One of the recreation objectives developed in this planning effort concerned the development of a recreation management plan for the Rattlesnake Canyon Area (T.31N., R.8W., and T.32N., R.8W.). A portion of the MFP decision (Recreation 4.1) concerning this objective was not to issue oil and gas leases in this area prior to completion of the minerals, wildlife and recreation studies. If the studies indicate that ACEC designation is appropriate, initiate action for designation.

This area has some unique recreational opportunities for hiking and backpacking. The area also has quality wildlife and botanical habitat and is currently not greatly disturbed.

Farmington No. 10

No leasing.

The San Juan Management Framework Plan was completed on August 17, 1979. One of the recreation objectives developed in this planning effort concerned the development of a recreation management plan for the Negro Canyon Area (T.31N., R.7, 8W., and T.32N., R.7, 8W.). A portion of the MFP decision (Recreation 7.1) concerning this objective was not to issue oil and gas leases in this area prior to completion of the minerals, wildlife and recreation studies. If the studies indicate that ACEC designation is appropriate, initiate action for designation.

The Negro Canyon Area has high potential for undisturbed back-country recreation experience. It also provides important winter wildlife habitat.

Farmington No. 11

No leasing.

The San Juan Management Framework Plan was completed on August 17, 1979. One of the recreation objectives developed in this planning effort concerned the development of a recreation management plan for the Carracas Mesa area (T.32N., R.5, 6W.). A portion of the MFP decision (Recreation 12.1) concerning this objective was not to issue oil and gas leases in this area prior to completion of a planning report to determine the wildlife and recreation potential. If the planning reports indicate that ACEC designation is appropriate, action will be initated on the designation.

The Carracas Mesa area has recreation and wildlife values. It is fairly undisturbed and has potential for dispersed outdoor recreation. The area provides winter range for elk and year-long range for deer. It is under cooperative management by the New Mexico Department of Game and Fish and the BLM.

FIGURE P-1 (Continued)

Farmington No. 12

No leasing.

The San Juan Management Framework Plan was completed on August 17, 1979. One of the recreation objectives developed in the MFP (Recreation 6.1) was to designate Simon Canyon as an ACEC. The Simon Canyon ACEC plan element was completed in July of 1980. One of the management measures approved in the plan was not to issue oil and gas leases within the area upon expiration of existing leases.

The values being protected in Simon Canyon include natural vegetative systems, scenic values, diverse wildlife resources and cultural resources.

Farmington No. 13

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan. which is satisfactory to the federal surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the federal surface management agency has been advised of the proposed surface use or occupancy of these lands and on request of the lessee/operator, the federal surface management agency will furnish further data on such areas.

Reason for Restriction: Recreational and Scenic Values.

Duration of Restriction: Year-round.

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the federal surface management agency for further information regarding the restrictive nature of this stipulation.

Lands within the leased area to which this stipulation applies are described as follows:
[Description of affected lands]

Farmington No. 14

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan, which is satisfactory to the federal surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

Farmington No. 14 (cont.)

After the federal surface management agency has been advised of the proposed surface use or occupancy of these lands and on request of the lessee/operator, the federal surface management agency will furnish further data on such areas.

Reason for Restriction: Cultural Values.

Duration of Restriction: Year-round.

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the federal surface management agency for further information regarding the restrictive nature of this stipulation.

Lands within the leased area to which this stipulation applies are described as follows:

[Description of affected lands]

Farmington No. 15

No occupancy or other activity on the surface of the following described lands is allowed under this lease:

[Description of affected lands]

No occupancy or other activity on the surface of all the lands in this lease will be allowed within 200 feet of occupied dwellings.

Farmington No. 16

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan, which is satisfactory to the federal surface management agency, for the protection of these special values and existing or planned uses. Any proposed activity will require an extensive inventory and consultation with the U.S. Fish and Wildlife Service. The consultation may take up to 180 days to complete. No surface occupancy will be allowed if the consultation results in a jeopardy opinion. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the federal surface management agency has been advised of the proposed surface use or occupancy of these lands and on request of the lessee/operator, the federal surface management agency will furnish further data on such areas.

Reason for Restriction: Threatened or Endangered Species.

Duration of Restriction: Year-round.

Farmington No. 16 (cont.)

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the federal surface management agency for further information regarding the restrictive nature of this stipulation.

Lands within the leased area to which this stipulation applies are described as follows:
[Description of affected lands]

New Mexico 6

No occupancy or other surface disturbance will be allowed within 1000 feet of the Continental Divide National Scenic Trail treadway. This distance may be modified when specifically approved in writing by the Bureau of Land Management.

New Mexico 7

By accepting this lease, the lessee acknowledges that the lands contained in this lease are being inventoried or evaluated for their wilderness potential by the Bureau of Land Managment (BLM) under Section 603 of the Federal Land Policy and Management Act of 1976 90 Stat. 2743 (43 USC Sec. 1782), and that exploration or production activities which are not in conformity with Section 603 may never be permitted. Expenditures in leases on which exploration and drilling or production are not allowed will create no additional rights in the lease, and such leases will expire in accordance with law.

Activities will be permitted under the lease so long as the BLM determines they will not impair wilderness suitability. This will be the case either until the BLM wilderness inventory process has resulted in a final wilderness inventory decision that an area lacks wilderness characteristics, or in the case of a Wilderness Study Area, until Congress has decided not to designate the lands included within this lease as wilderness. Activities will be considered non-impairing if the BLM determines that they meet each of the following three criteria:

(a) It is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.

(b) Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the Wilderness Study Area (or Inventory Unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within four years after approval of the activity (obviously, if and when the Interim Management Policy ceases to apply to an Inventory Unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will

FIGURE P-1 (Continued)

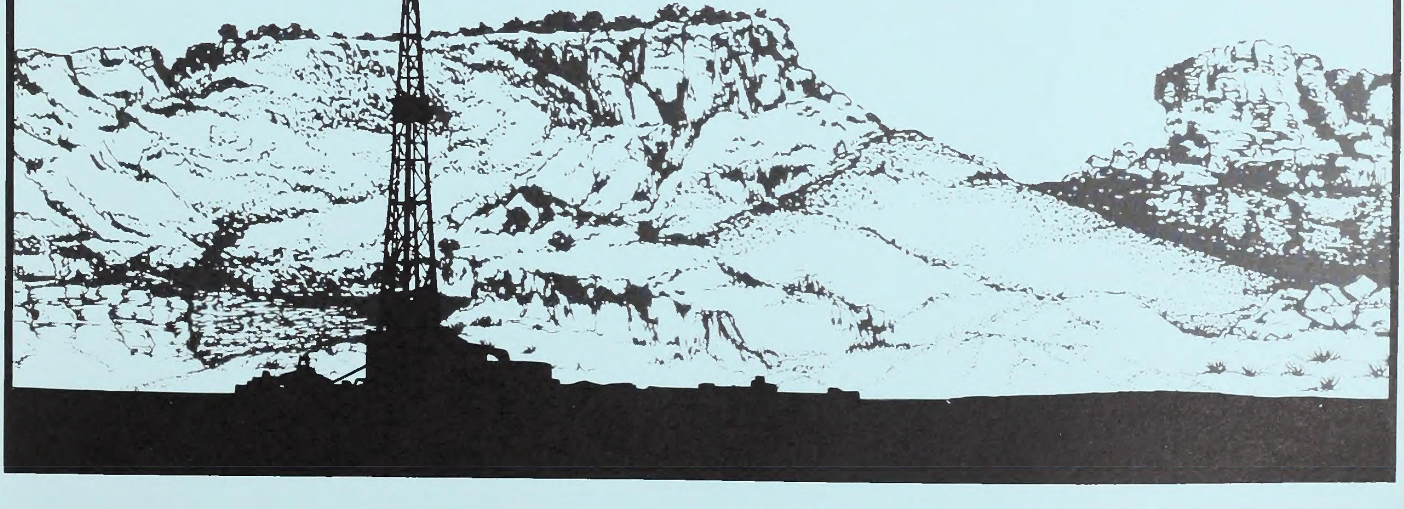
New Mexico 7 (cont.)

cease to apply.) The Secretary's schedule for transmitting recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendations with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedules will be based on conservation assumptions with regard to growing conditions, so as to ensure the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F of the Interim Management Policy and Guidelines for Lands Under Wilderness Review [USDI, BLM 1979]).

(c) When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in Section 2(c) of the Wilderness Act, including naturalness, outstanding opportunities for solitude or for primitive and unconfined recreation and ecological, geological or other features of scientific, educational, scenic, or historical value. If all or any part of the area included within the leasehold estate is formally designated by Congress as wilderness, exploration and development operations taking place or to take place on the part of the lease will remain subject to the requirements of this stipulation, except as modified by the Act of Congress designating the land as wilderness. If Congress does not specify in such act how existing leases like this one will be managed, then the provisions of The Wilderness Act of 1964 will apply, as implemented by rules and regulations promulgated by the Department of the Interior.

Glossary



GLOSSARY

ACTIVITY PLAN - A more detailed and specific management plan for a single resource program or plan element undertaken to implement the more general Resource Management Plan decisions. An activity plan is prepared for specific areas to reach specific resource management objectives within stated timeframes. Detailed management actions, including such things as projects, treatments, other on-the-ground activities, and schedules are described in the document. Activity planning is the third tier in the BLM planning system. Examples include Allotment Management Plans, Cooperative Management Plans, Cultural Resources Management Plans, Recreation Area Management Plans, Transportation Plans, and Habitat Management Plans. Activity plans implement decisions made in the Resource Management Plan.

ACTUAL USE - Use made of forage on any area by livestock and/or wildlife without reference to permitted or recommended use.

ALLOTMENT - An area of land where one or more permittees graze their livestock. Generally consists of public lands but may include parcels of private or state lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of several pastures or be any one pasture.

ALLOTMENT CATEGORIZATION - Maintain (M); Improve (I); Custodial (C). The system that allows for implementing grazing management based on the need for management and the potential for improved range condition, with consideration for cost-effectiveness.

ALLOTMENT MANAGEMENT PLAN (AMP) - An activity plan which applies to livestock grazing on the public lands, prepared in consultation, cooperation, and coordination with the permittee(s), lessee(s), or other affected interest.

ALLUVIAL/ALLUVIUM - Pertaining to material that is transported and deposited by running water.

ALTERNATIVE - The different ways of addressing the planning issue(s) and management activities considered in the planning process. These provide the decisionmaker and the public a clear basis for choices among options. Every planning effort involves the development of several complete, reasonable alternatives for resolving the issue(s). One of the alternatives offered is the continuation of present management (no change) while the other alternatives provide a range of choices for resolution of the issues. One of the alternatives is selected at the end of the planning process and approved as the plan.

ANIMAL UNIT (AU) - Considered to be one mature cow (1,000 pounds) or its equivalent based upon average daily forage consumption of 26 pounds of dry matter per day.

ANIMAL UNIT MONTH (AUM) - The amount of forage necessary for the sustenance of one cow (animal unit) or its equivalent for a period of one month; also a unit of measure of "grazing preference."

AQUIFER - A geologic formation that contains sufficient saturated permeable material to yield a usable quantity of water to wells or springs.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) - An area where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, to fish and wildlife resources, or to other natural systems or processes, or to protect persons from natural hazards.

AUTHORIZED OFFICER - Any person authorized by the Secretary of the Interior, or his representative, to administer regulations.

AUTHORIZED LIVESTOCK GRAZING USE - That portion of the livestock grazing preference or allowable livestock grazing use authorized to be used during a grazing year.

BROWSE - Trees and shrubs whose twigs, leaves, or fruit are eaten by wildlife or livestock.

CANDIDATE SPECIES - Species identified by the U.S. Fish and Wildlife Service as appropriate for listing as threatened or endangered.

CARRYING CAPACITY - The maximum stocking rate possible in a given environment which can be maintained without inducing damage to vegetation or related resources. Carrying capacity may vary annually in the same area due to fluctuating weather conditions and forage production.

CHAINING - A method of creating openings in pinyon-juniper woodlands by pulling an anchor chain between two tractors, knocking over or uprooting the trees.

COAL SCREENS - The series of analyses performed during the federal coal lands review process. The screens are: coal development potential, unsuitability criteria, multiple use, and surface owner consultation as defined in 43 CFR 3420.

COAL UNSUITABILITY CRITERIA - Regulations developed by the BLM, OSM, or mandated by SMCRA which use the ability of an area's surface resources to accept or absorb the impact of coal mining activities as a means to determine the suitability or unsuitability of the area for coal mining as defined in 43 CFR 3461.

CONTINENTAL DIVIDE NATIONAL SCENIC TRAIL TREADWAY - The actual trail established and marked as the route of the Continental Divide National Scenic Trail. It can exist as part of the Continental Divide National Scenic Trail system only after formal designation by the appropriate agency head and publishing a notice in the Federal Register.

CONTRAST - Opposition or dissimilarity of different forms, lines, colors, or textures in a landscape.

COOPERATIVE MANAGEMENT PLAN (CMP) - Written plans designed to enhance range condition by improving livestock distribution and providing the proper use and periodic rest of available forage on public lands. These plans specify goals and objectives for grazing management and the steps required to attain the desired results on individual allotments.

CRITICAL HABITAT FOR THREATENED OR ENDANGERED PLANT OR ANIMAL SPECIES - Areas officially designated by the U.S. Fish and Wildlife Service. There are none in this planning area.

CULTURAL RESOURCE INVENTORY:

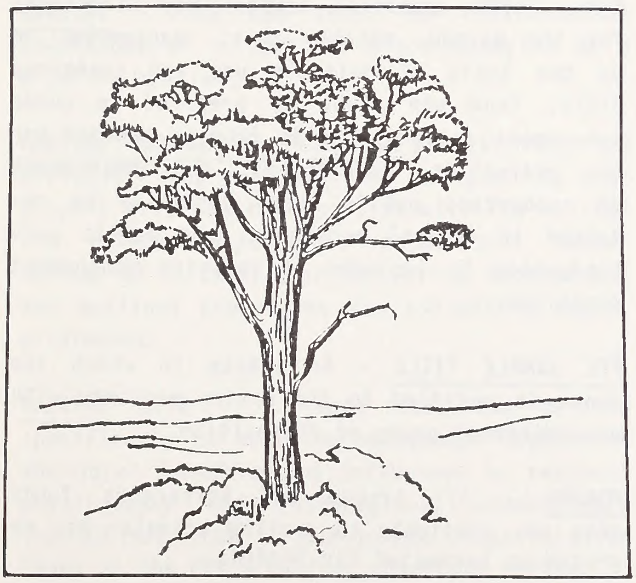
> **CLASS I** - An existing data survey. This is an inventory of a study area: (1) to provide a narrative overview of cultural resources by using existing information and (2) to compile existing cultural resources site record data on which to base the development of the BLM's site record system.
>
> **CLASS II** - A sampling field inventory. This is designed to locate from surface and exposed profile indications all cultural resource sites within a portion of an area so that an estimate can be made

of the cultural resources for the entire area. The Class II inventory is to be used where an intensive field inventory (Class III) is not practical or necessary.

CLASS III - An intensive field inventory. This is designed to locate from surface and exposed profile indications all cultural resource sites in an area. Upon its completion, no further cultural resource inventory work is normally needed. A Class III inventory is appropriate for small project areas, all areas to be disturbed, and primary cultural resource areas.

CULTURAL RESOURCE MANAGEMENT PLAN (CRMP) - A written and officially approved plan for an area or a group of resources. It identifies cultural resources protection and use objectives, and outlines procedures for evaluating accomplishments.

CULTURAL RESOURCES - Fragile and non-renewable remains of human activity, occupation, or endeavor. They are reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural resources that were of importance in human events. These resources consist of: (1) physical remains, (2) areas where significant human events occurred, even though evidence no longer remains, and (3) the environment immediately surrounding the resource.



CUMULATIVE IMPACT - The environmental impact resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions, regardless of the agency (federal or non-federal) or person(s) undertaking other actions. Cumulative impacts can result from individual minor, but collectively significant, actions taking place over a period of time.

CURRENT AUTHORIZED USE - Current active grazing preference (in AUMs).

DISPERSED RECREATION - Pleasure-seeking activities which occur over wide areas. Density of use is normally low and facility developments are minimal.

EASEMENT - A document that ensures access across a described parcel of land along a described route and which encumbers the land.

ECOLOGICAL CONDITION - The present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for the site.

ECOLOGICAL CONDITION CLASS - Four classes are used to express the departure of the present plant community from the climax plant community; expressed as a percentage.

Class	Percent Resemblance
Excellent	76-100
Good	51-75
Fair	26-50
Poor	0-25

ECOLOGICAL CONDITION RATING - A rating based on the departure from the climax plant community of the present plant community.

ECOSYSTEM - An interacting natural system including all the component organisms together with its non-living environment.

EMERGENCY LEASING - Emergency coal leases may be issued in response to an application as outlined under 43 CFR 3425.1-4. Briefly, an emergency lease may be issued if the coal reserves are part of a mining operation that is producing coal and either: (1) the federal coal is needed within three years to maintain an existing mining operation, or (2) if the coal deposits are not leased, then they would be bypassed, and if leased, some of the coal on the tract would be used within three years.

ENDANGERED SPECIES - Federally listed - Any animal or plant species in danger of extinction throughout all or a significant portion of its range. State (Group I) - Species whose prospect of survival or recruitment in the state are in jeopardy in the foreseeable future. State (Group II) - Species whose prospect of survival or recruitment within the state may become jeopardized in the foreseeable future.

ENERGY MINERALS ACTIVITY RECOMMENDATION SYSTEM (EMARS) - Established by the 1975 Coal Management Program, it has three phases: (1) nomination and programming, (2) scheduling, and (3) leasing.

ENVIRONMENTAL ASSESSMENT (EA) - A concise document that serves to: (1) briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact; (2) aid an agency's compliance with the National Environmental Policy Act (NEPA) when no environmental impact statement is necessary; (3) facilitate preparation of a statement when one is necessary. An EA includes brief discussions of the need for the proposal, of alternatives as required by Section 102(2) of NEPA, of the environmental impacts of the proposed action and other alternatives, and a listing of agencies and persons consulted.

ENVIRONMENTAL IMPACT STATEMENT (EIS) - Version of the statement of environmental effects required for major federal actions under Section 102 of NEPA and released to the public and other agencies for comment and review. It is a formal document that must follow requirements of NEPA, CEQ guidelines, and directives of the agency responsible for the proposed project or plan.

EPHEMERAL STREAM - A stream or portion of a stream which flows only in direct response to precipitation. Such flow is usually of short duration.

EROSION - The detachment and movement of soil or rock by water, wind, ice, or gravity.

EXCAVATION - Controlled scientific removal of artifacts and recording of data from subsurface cultural resource deposits.

EXCHANGE ZONE - An identified area in which a large portion of the federal lands may be suitable for adjustment through exchange, sale, withdrawal, R&PP etc. In these areas an overall reduction of federal acreage would be allowed with exchange as the preferred method of adjustment. All lands to be adjusted would still have to meet Federal Land Policy and Management Act disposal criteria. Not all lands in the exchange zone may be suitable for adjustment as determined through the normal processing of each individual proposal.

EXTENSIVE RECREATION MANAGEMENT AREA - In these areas, significant recreation opportunities and problems are limited and intensive recreation management is not required. Minimal management actions are adequate.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA) - Establishes public land policy for management of lands administered by the BLM. FLPMA specifies several key directions for the Bureau, notably that: management be on the basis of multiple use and sustained yield; land use plans be prepared to guide management actions; public land be managed for the protection, development, and enhancement of resources; public lands generally be retained in federal ownership; and public participation be included in reaching management decisions.

FEE SIMPLE TITLE - An estate in which the owner is entitled to the entire property with unconditional power of disposition.

FORAGE - All browse and herbaceous foods that are available to grazing animals; may be grazed or harvested for feeding.

FORAGE VIGOR - The relative health and well-being of a plant as reflected by its ability to manufacture sufficient food reserves for growth, maintenance, and reproduction.

FORB - Any herbaceous non-woody plant that is not a grass or grass-like plant.

FUELWOOD - Firewood; wood for fuel.

FULL FIRE SUPPRESSION - The policy of taking aggressive action to contain all fires within a given area by 10 a.m. of the day following ignition.

GAGE - Alternate spelling of gauge in prevalent use by water resource specialists.

GRAZING PREFERENCE - The total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee lessee.

GRAZING SYSTEM - A systematic sequence of grazing use and non-use of an allotment to reach identified multiple use goals or objectives by improving the quality and quantity of the vegetation.

GROUND COVER (SOIL) - Material covering soil and providing protection from, or resistance to, impact of raindrops, expressed in percent of area covered. Composed of vegetation, litter, erosion pavement, and rock.

HABITAT - The sum total of environmental conditions of a specific place occupied by a wildlife species.

HABITAT MANAGEMENT PLAN (HMP) - Written and officially approved plan for a specific geographic area which identifies wildlife habitat and related objectives, establishes consequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

HABITAT SITE - A local ecosystem defined specifically by existing homogenous vegetation and local landform and influenced by regional physiography and intraregional association. The habitat site is the lowest classification level of the BLM's habitat inventory system.

HARDROCK MINING - Underground or open-pit mining, generally associated with locatable minerals.

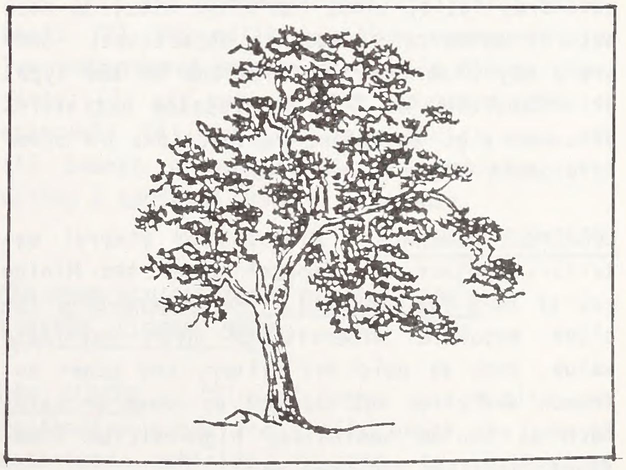
HUNDRED YEAR FLOOD PLAIN - Defined as that area of land that has a one percent chance of being inundated during any given year.

INTERDISCIPLINARY TEAM - The group of Resource Area and District specialists responsible, along with the core team, for the preparation of the Resource Management Plan.

ISSUE - A matter of controversy over resource managment activities that is typically discrete and provides alternatives for a decision. Typically the causal relationship between the activity and undesirable results is documentable and the level of controversy is high enough to merit further analysis. Statement of the planning issue orients the resource managment planning process so the vigor of interdisciplinary thought, analysis, and documentation is directed toward resolving the planning issues during the preparation of a Resource Management Plan.

JACAL - The wattle and daub construction method used in some above-ground cultural site structures.

KNOWN GEOLOGIC STRUCTURE (KGS) - A trap in which an accumulation of oil and gas has been discovered by drilling and which is determined to be productive. Its limits include all acreage that is presumptively productive [43 CFR 3100.0-5(a)]. Lands underlain by a KGS may be leased only through a competitive system.



KNOWN RECOVERABLE COAL RESOURCE AREA (KRCRA) - Area that includes federal lands that meet minimum standards for recoverable coal in accordance with accepted mining practices, as determined by the Director of the USGS. The federal lands in a KRCRA are classified for coal leasing.

LAND OWNERSHIP ADJUSTMENT - Changes made in the ownership pattern of public lands in order to adjust a Resource Area land base. The purpose of these changes is to improve the management of public, private, and state lands.

LAND WITHDRAWALS - The removal or withholding of public lands by statute or secretarial order from operation of some or all of the public land laws.

LEASABLE MINERALS - Those minerals or fluids that can be acquired under lease from the federal government. They include oil, gas, geothermal energy, coal, phosphate, sodium, potash, oil shale, sulfur, and all minerals on acquired lands.

LEGAL ACCESS - The right of access to public lands by all modes or routes of travel which do not violate any law or regulation.

LICENSED USE - Active use AUMs that a permittee has paid for during a given grazing period.

LIMITED FIRE SUPPRESSION - The policy which allows fire suppression activities to be dictated by prescribed fire parameters, i.e. temperature, fuels, wind, humidity, etc., to meet natural resource management objectives. Some areas may also have restrictions on the types or intensities of fire suppression activities allowed, e.g. equipment restrictions in order to protect other resource values.

LOCATABLE MINERALS - Minerals or mineral materials subject to disposal under the Mining Law of 1872 (as amended). These generally include metallic minerals of high intrinsic value, such as gold and silver, and other uncommon varieties not subject to lease or sale, such as sodium bentonite, high-calcium limestone, perlite, and uranium.

LOGICAL MINING UNIT - An area of land in which the recoverable coal reserves can be developed in an efficient, economical, and orderly manner as a unit, with due regard for the conservation of recoverable coal reserves and other resources.

LOWER SONORAN LIFE ZONE - The life zone which extends from an elevation of about 2,800 to 5,000 feet. The major floral type is desert shrub.

MAJOR LAND RESOURCE AREA (MLRA) - Large geographic areas of land characterized by particular patterns of soil, climate, water resources, and land use.

MANAGEMENT FRAMEWORK PLAN (MFP) - A planning decision document that established land use allocations, coordination guidelines for multiple use, and management objectives for each class of land use or protection for a given planning area. It was the BLM's land use plan. An MFP was prepared in three steps: (1) resource recommendations, (2) impact analysis and alternative development, and (3) decision making. Since 1982, BLM land use plans have been developed under an altered planning system called Resource Management Plans (RMPs).

MANAGEMENT SITUATION ANALYSIS (MSA) - An unpublished companion document to this RMP that provides the background documentation for the development of alternatives.

MINE PLAN - A plan of operation which details how a coal lease will be mined and the area reclaimed. It is prepared in order to obtain a mine permit.

MINERAL ENTRY - The occupation of a tract of land for the express purpose of exploring for and extracting mineral materials.

MINERAL ESTATE (MINERAL RIGHTS) - The ownership of all minerals, including all rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

MITIGATION - The alleviation or lessening of possible adverse effects of an action upon a resource by application of appropriate protection measures or adequate scientific study.

MULTIPLE USE - The management of the public lands and their various resource values so that they are used in the combination that will best meet the present and future needs of the American people. These resources include, but are not limited to, recreation, range, timber, minerals, watershed, wildlife, and fish, as well as natural, scenic, scientific, and historical values. The goal of multiple use is the harmonious and coordinated management of the various resources without permanent impairment of the productivity of the lands and the quality of the environment. Consideration is given to the relative values of the resources, but not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output (see the Federal Land Policy and Management Act).

NATIONAL HISTORIC LANDMARK - A designation established by The Historic Sites Act of 1935. That Act gave the Secretary of the Interior responsibility for systematically identifying resources which by historic association, architectural or design excellence, or extraordinary information content are nationally significant. Landmarks include districts, sites, buildings, structures, and objects pivotal in national history, architecture, archeology, or culture. Criteria for landmark status parallel to some degree those of the National Register of Historic Places, but the associative, architectural, aesthetic, or informational quality required is significantly greater and must pertain to the nation rather than to a single place or group of people.

NATIONAL NATURAL LANDMARK - A specific area designated by the Secretary of the Interior which contains a representative example(s) of the nation's natural history. It can include terrestrial communities, aquatic communities, landforms, geological features, or habitats of native plant and animal species. A landmark must possess national significance in illustrating or interpreting the nation's natural heritage.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP) - The official list, established by the Historic Preservation Act of 1966, of the nation's cultural resources worthy of preservation. The Register lists archeological, historic, and architectural properties (i.e. districts, sites, buildings, structures, and objects) nominated for their local, state, or national significance by state or federal agencies and approved by the National Register staff.

NO SURFACE DISTURBANCE - Prescribed on a case-by-case basis when the activity plan for an area is developed. In general, an activity would be allowed as long as it does not interfere with the management objectives of the area.

NO SURFACE OCCUPANCY - A fluid mineral (i.e. oil and gas) leasing stipulation that prohibits occupancy or disturbance of all or part of the lease surface in order to protect special values or uses. Lessees may exploit the oil and gas or geothermal resource in this lease by directional drilling from sites outside the no surface occupancy area.

NON-COMPETITIVE SALE - Land sales made at fair market value without competitive bidding.

NON-GAME SPECIES - Wildlife species which are protected by law from sport or commercial harvest.

NON USE - Allowable livestock grazing use (in AUMs) that is authorized but not to be used during a given time period. Non use is applied for and authorized on an annual basis.

OFF-ROAD VEHICLE (ORV) - Any motorized vehicle capable of or designed for travel on or immediately over natural terrain. Excluded are: (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle when used for an emergency; (3) any vehicle with expressed official approval; (4) vehicles in official use; and (5) combat or combat support vehicles used during a national defense emergency.

OFF-ROAD VEHICLE (ORV) DESIGNATIONS - LIMITED, CLOSED, OPEN:

ORV CLOSED - "Closed" areas and trails are designated areas and trails where the use of motorized vehicles (except by authorized users) is permanently or temporarily prohibited.

ORV LIMITED - "Limited" areas and trails are designated areas and trails where the use of motorized vehicles is subject to restrictions deemed appropriate by an authorized officer. Restrictions may limit the number or types of vehicles allowed, dates and times of use, and similar matters. "Limited" areas and trails may be designated for special or intensive use such as organized events and may be subject to, but not limited to, rules set forth in 43 CFR 8341.2.1. ORV use related to mining claim operations will not be restricted, except by regulations and requirements found in 43 CFR 3809, as amended on March 2, 1983. ORV use performed in conformance with existing leases, permits, rights-of-way stipulations, or other land-use authorizations will not be impinged upon.

ORV OPEN - "Open" areas and trails are designated areas and trails where motorized vehicles may be operated subject to the operating regulations and vehicle standards set forth in 43 CFR 8341 and 8343.

OUTSTANDING NATURAL AREA (ONA) - Areas of outstanding scenic splendor, natural wonder, or scientific importance that merit special attention and care in management to ensure preservation in their natural condition. These areas are usually undisturbed, and may contain rare botanical, geological, or zoological values which are of interest for scientific research purposes. Access roads and public use facilities are normally located on the periphery of the area.

PALEONTOLOGY - Science dealing with life and past geological periods as known from fossil remains.

PATENT - A grant made to an individual or group conveying fee simple title to the public lands.

PATENTED CLAIM - A claim on which title has passed from the federal government to the mining claimant under the Mining Law of 1872.

PAYMENT IN LIEU OF TAXES (PILT) - Payments received by individual counties from the federal government for federal lands within the counties. Total federal acreage and population are used to determine the funding levels.

PERENNIAL STREAM - A stream or portion of a stream which flows continuously.

PERMITTEE - One who holds a permit to graze livestock on public land.

PETROGLYPH - Picture or hieroglyph incised or carved into a surface, usually stone.

PINYON - Alternate spelling of pinon commonly used when diacritical markings are unavailable.

PLANNING CRITERIA - The standards developed by the manager and an interdisciplinary team for their use in forming judgments about decisionmaking, analysis, and data collection during planning. They streamline and simplify the subsequent prescribed resource management planning actions by setting forth the standards for making decisions in each of the prescribed planning actions.

POTHUNTING - Slang term used by professional archeologists to describe illegal or non-professional relic collecting.

PREFERENCE RIGHT LEASE - Right of applicant to apply for resources in public lands noncompetitively. For example, an applicant who had discovered a mineral deposit under a prospecting permit might be allowed a preference right lease over any other lease applicant.

PROPER USE - The proper level of forage utilization that allows for the maintenance or improvement of ecological condition.

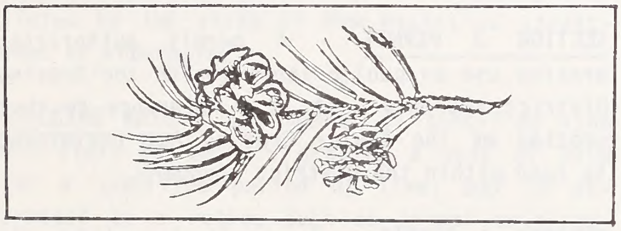
PUBLIC LANDS - Any land and interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except:

- lands located on the Outer Continental Shelf
- lands held for the benefit of Indians, Aleuts, or Eskimos
- lands in which the United States retains the minerals, but surface is private.

PUBLIC ROAD - All roads and highways, except private roads, established in pursuance of any law of New Mexico, and roads dedicated to public use, that have not been vacated or abandoned, and such other roads as are recognized and maintained by the corporate authorities of any county in New Mexico. Examples of public roads are state or federal highways, county roads or municipal streets.

RANCH BUDGET - An itemized summary of the expenditures and receipts of a typical ranch operation.

RANGE IMPROVEMENT - Structure, development, or treatment used to rehabilitate, protect, or improve public lands to enhance range resources.



RANGE SITE - A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community, is the product of all environmental factors responsible for its development, and is capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production.

RANGE TREND - The change in vegetative and soil characteristics as a direct result of environmental factors, primarily climate and grazing. Range trend studies are used in combination with other studies to evaluate the results of grazing management.

RANGELAND MONITORING PROGRAM - Program designed to measure changes in plant composition, ground cover, animal populations, and climatic conditions on public rangeland. Vegetation studies, used to monitor changes in rangeland condition and determine reason for any changes that are occurring, consist of actual use, utilization, trend, and climatic conditions.

RAPTOR - Any predatory bird, such as a falcon, hawk, eagle, or owl, that has feet with sharp talons or claws adapted for seizing prey and a hooked beak for tearing flesh.

RECLAMATION - The process of returning disturbed lands to their original form and productivity.

RECREATION AND PUBLIC PURPOSES ACT (R&PP ACT) - An Act which authorizes the Secretary of the Interior, under specific conditions, to sell or lease public domain lands to state and local governments for recreation and other public purposes, or to qualified non-profit organizations, for public or quasi-public purposes, such as recreation, education, and health.

RECREATION OPPORTUNITY SPECTRUM (ROS) - A framework for stratifying and defining classes of outdoor recreation opportunity environments.

RESEARCH NATURAL AREA (RNA) - An area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics: (1) a typical representation of a common plant or animal association; (2) an unusual plant or animal association; (3) a threatened or endangered plant or animal species; (4) a typical representation of common geologic, soil, or water features; (5) outstanding or unusual geologic, soil, or water features.

RESOURCE MANAGEMENT PLAN (RMP) - A land use plan as described by the Federal Land Policy and Management Act. The Resource Managment Plan generally establishes in a written document: (1) land areas for limited, restricted, or exclusive use; designation, including Areas of Critical Environmental Concern designation; and transfer from BLM administration; (2) allowable resource uses (either singly or in combination) and related levels of production or use to be maintained; (3) resource condition goals and objectives to be attained; (4) program constraints and general management practices needed to achieve the above items; (5) need for an area to be covered by more detailed and specific plans; (6) support actions, including such measures as resource protection, access, development, realty action, cadastral survey, etc., as necessary to achieve the above; (7) general implementation sequences, where carrying out a planned action is dependent upon prior accomplishment of another planned action; and (8) intervals and standards for monitoring and evaluating the plan to determine the effectiveness of the plan and the need for amendment or revision. It is not a final implementation decision on actions which require further specific plans, process steps, or decisions under specific provisions of law and regulations.

RETENTION ZONE - All areas of the Farmington Resource Area which are not identified for exchange or some other method of disposal. Special Management Areas outside the retention zone will also be retained and managed by the BLM. The primary goal in this zone is to consolidate land ownership patterns through state and private exchanges.

RIGHT-OF-WAY AVOIDANCE AREAS - Areas in which rights-of-way will be prohibited due to sensitive resources.

RIGHT-OF-WAY (ROW) CORRIDORS - A narrow band of land designated for the placement of transmission lines.

RIGHT-OF-WAY (ROW) WINDOWS - Areas critical for transmission line placement due to topographic, land ownership or other constraints in the area.

RIPARIAN HABITAT OR AREA - A zone of transition from the aquatic to terrestrial ecosystems, whose presence is dependent upon surface and/or subsurface water, and which reveals through its existing or potential soil vegetation complex the influence of that water. Riparian habitat may be associated with features such as lakes, reservoirs, estuaries, potholes, springs, bogs, wet meadows, muskegs, and ephemeral, intermittent or perennial streams.

SALEABLE MINERALS - Common variety mineral materials (sand, gravel, etc.) which are disposed of by sale by the federal government under the Material Sales Act of 1947 and the Surface Resources Act of 1955.

SCENIC AREA - An area established along highways, roads, trails, or streams which shall be managed to protect and/or enhance the scenic qualities and visual sensitivity that led to the designation of the area.

SCENIC QUALITY - Degree of harmony, contrast, and variety within a landscape.

SCENIC QUALITY RATING - The relative scenic quality (A, B, or C) assigned to a landscape by applying the scenic quality evaluation key factors. A is the highest rating, B is intermediate, and C is the lowest.

SCOPING PROCESS - Early process for determining the scope of issues to be addressed and for identifying significant issues related to proposed actions.

SECTION 3 PERMIT - A permit authorizing grazing use on public lands inside the Grazing District boundary. It is a reference to that section of the Taylor Grazing Act pertaining to land within the District boundary.

SECTION 4 PERMIT - A permit issued by the BLM for the permittee to construct a project on public lands as defined in the Taylor Grazing Act.

SECTION 15 LEASE - A lease authorizing grazing use on public lands outside the Grazing District boundary. It refers to that section of the Taylor Grazing Act pertaining to lands outside the Grazing District boundary.

SEDIMENT YIELD - Amount of sediment given up by a watershed over a specific time period, usually a year. Ordinarily, it is expressed as tons, acre feet, or cubic yards.

SEDIMENTATION - Process of depositing material, such as water depositing suspended soil particles in an area, such as a stream bottom.

SPECIAL MANAGEMENT AREA (SMA) - An area requiring special management by the Bureau of Land Management to protect one or more resource values. An SMA may include non-public lands that the BLM wishes to acquire or to bring under a Cooperative Management Agreement to better manage the valued resource. At a minimum, an activity plan will be prepared for an SMA. SMAs may be given designations under various existing labels such as Area of Critical Environmental Concern or Research Natural Area. SMAs are not necessarily excluded from development if the development activity does not conflict with the goals for the area.

SPECIAL RECREATION MANAGEMENT AREA - Areas requiring explicit recreation management to achieve BLM's recreation objectives and to provide specific recreation opportunities.

SPLIT ESTATE - Lands where surface and mineral estates have been severed and are under different ownership (i.e. private surface with public minerals).

STATE-LISTED SPECIES - Animals or plants listed by the state of New Mexico as threatened or endangered.

STOCKING RATE - The number of specified kind and class of animals grazing a unit of land for a specified period of time; may be expressed as a ratio, such as animal unit/section, acres/animal unit month.

SURFACE MINING - Mining in surface excavations, including placer mining, mining in open glory-hole pits, mining and removing ore from open cuts by hand or with mechanical excavating and transportation equipment, and the removal of capping or overburden to uncover the ores. Mining at or near the surface is generally done where the overburden can be removed without great expense.

SUSTAINED YIELD - Achievement and maintenance in perpetuity of a high-level annual or regular periodic output of various renewable resources of public lands consistent with multiple use.

TALUS - A sloping mass of rocky fragments at the base of a cliff.

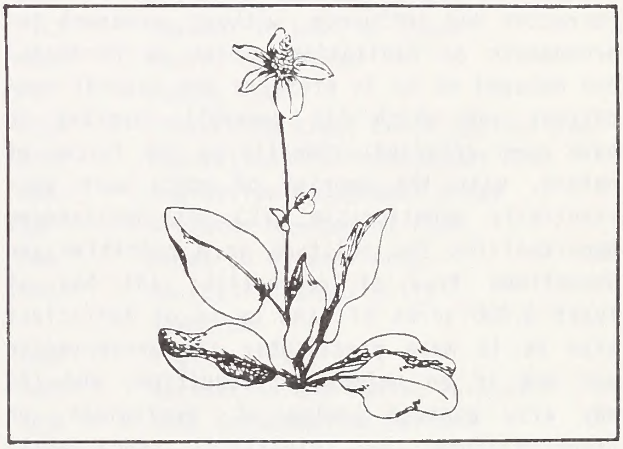
THREATENED AND/OR ENDANGERED SPECIES - Plants and animals listed by the U.S. Fish and Wildlife Service or the state of New Mexico as threatened or endangered.

TRACT - A defined area of land which will logically be proposed as a single lease offering. At the preliminary tract stage, the exact boundaries of tracts would still be subject to adjustment based on subsequent analysis.

TRANSECT - The sample area on which inventory data are gathered such as at points along a line or over an area of designated width and length.

TRANSMISSION LINE - Any electrical transmission line of 69 kV capacity or greater or any gas line of 6-inch diameter or greater.

TYPE LOCALITY - The place at which a stratigraphic unit (such as a formation or a series) is typically displayed and from which it derives its name. It contains the type section and is contained within the type area.



UNPATENTED MINING CLAIM - A claim made under the authority of the Mining Law of 1872 on vacant, unappropriated public lands, where valuable locatable minerals have been discovered.

VALID EXISTING RIGHTS - Legal interests that attach to a land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

VISUAL RESOURCE MANAGEMENT (VRM) - The system by which the BLM classifies and manages the visual resource of public lands. Based on their scenic qualities, sensitivities, and the distances from which they are viewed, the lands are classified into management units. The system includes actions taken to identify visual values, to establish objectives for managing these values, and to achieve the visual management objectives.

VISUAL SENSITIVITY - The degree of concern expressed by users toward scenic quality and existing or proposed visual change in a particular characteristic landscape.

WILD HORSES - All unbranded and unclaimed horses and their progeny found on public lands on or after Dec. 15, 1971, or that use these lands as all or part of their habitat.

WILDERNESS - Definition contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891): A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean ... an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical values.

WILDERNESS MANAGEMENT POLICY - Policy document prescribing the general objectives, policies, and specific activity guidance applicable to all designated BLM wilderness areas. Specific management objectives, requirements, and decisions implementing administrative practices and visitor activities in individual wilderness areas are developed and described in the wilderness management plan for each unit.

WILDERNESS STUDY AREA (WSA) - Roadless area of land that has been inventoried and found to have wilderness characteristics as described in Section 603 of FLPMA and Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

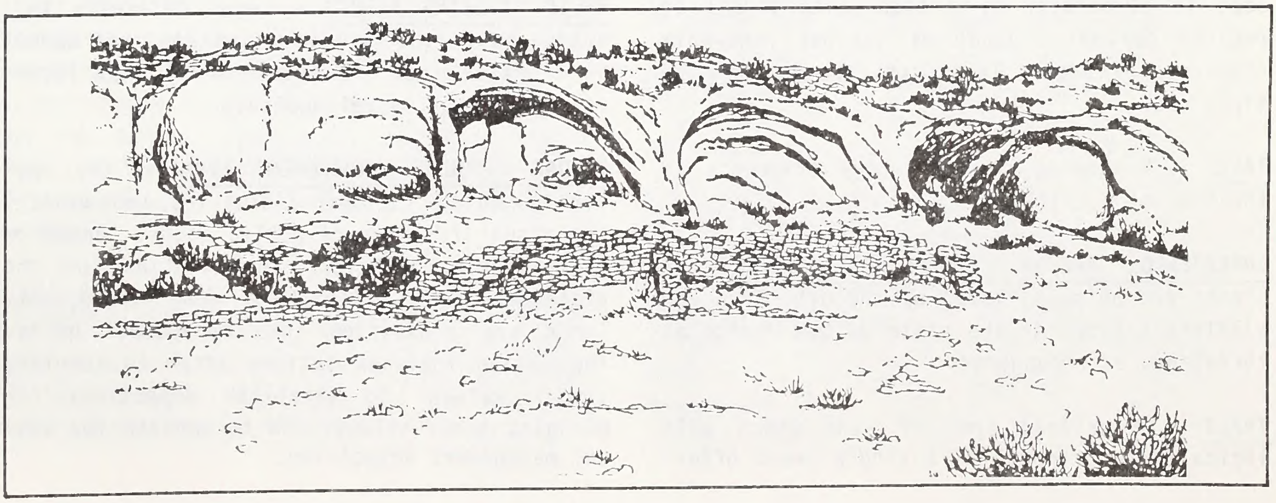
WILDLIFE - Includes all species of mammals, birds, amphibians, and reptiles, or their progeny or eggs which, whether raised in captivity or not, are normally found in a wild state. Feral horses and burros are excluded.

WILDLIFE HABITAT - Sum total of environmental conditions of a specific place occupied by a wildlife species or population of such species.

WILDINGS - Tree or shrub suitable for landscape design.

WINTER RANGE - An area providing winter habitat for an animal species.

WITHDRAWAL - Actions which restrict the use of public lands and segregate the lands from the operation of some or all of the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management to other federal agencies.



LIST OF ACRONYMS

ACEC	Area of Critical Environmental Concern
AIRFA	American Indian Religious Freedom Act
AMP	Allotment Management Plan
APD	Application for Permit to Drill, Deepen, or Plugback
ARPA	Archeological Resources Protection Act
AUM	Animal Unit Month
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CMA	Cooperative Management Agreement
C&MU	Classification and Multiple Use
CRMP	Cultural Resources Management Plan
DOD	Department of Defense
DOE	Department of Energy
EA	Environmental Assessment
EAR	Environmental Assessment Record
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act
FPC	Federal Power Commission
FRA	Farmington Resource Area
FY	Fiscal Year
HMP	Habitat Management Plan
I&E	Inspection and Enforcement
KGS	Known Geologic Structure
MCF	Thousand Cubic Feet
MLRA	Major Land Resource Areas
MMS	Minerals Management Service
MOU	Memorandum of Understanding
MRI	Mineral Resource Inventory
MSA	Management Situation Analysis
MFP	Management Framework Plan
NADP	National Atmospheric Deposition Program
NEPA	National Environmental Policy Act
NFYP	Normal Fire Year Plan
NHPA	National Historic Preservation Act
NMDGF	New Mexico Department of Game and Fish
NMEID	New Mexico Environmental Improvement Division
NMSO	New Mexico State Office
NOL	Not Open to Leasing
NORA	Notice of Realty Action
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
NWPS	National Wilderness Preservation System
NTL	Notice to Lessees
OHV	Off-Highway Vehicle
ONA	Outstanding Natural Area
ORV	Off-Road Vehicle
OSM	Office of Surface Mining
PILT	Payment in Lieu of Taxes
PLO	Public Land Order
PL	Public Law
PRLA	Preference Right Lease Application
RAMP	Recreation Area Management Plan
RMA	Recreation Management Areas
RMP	Resource Management Plan
RNA	Research Natural Area
ROS	Recreation Opportunity Spectrum
ROW	Rights-of-Way
R&PP	Recreation and Public Purpose
SCS	Soil Conservation Service
SHPO	State Historic Preservation Office
SJEIS	San Juan Grazing Management Environmental Impact Statement or San Juan Grazing EIS
SJRRCEIS	San Juan River Regional Coal EIS
SMA	Special Management Area
SMCRA	Surface Mining Control and Reclamation Act
SO	Secretarial Order
T&E	Threatened and/or Endangered (species)
USDI	United States Department of the Interior
USFS	United States Forest Service
USFW	United States Fish and Wildlife Service
USGS	United States Geological Survey
VRM	Visual Resource Management
WA	Wilderness Area
WSA	Wilderness Study Area

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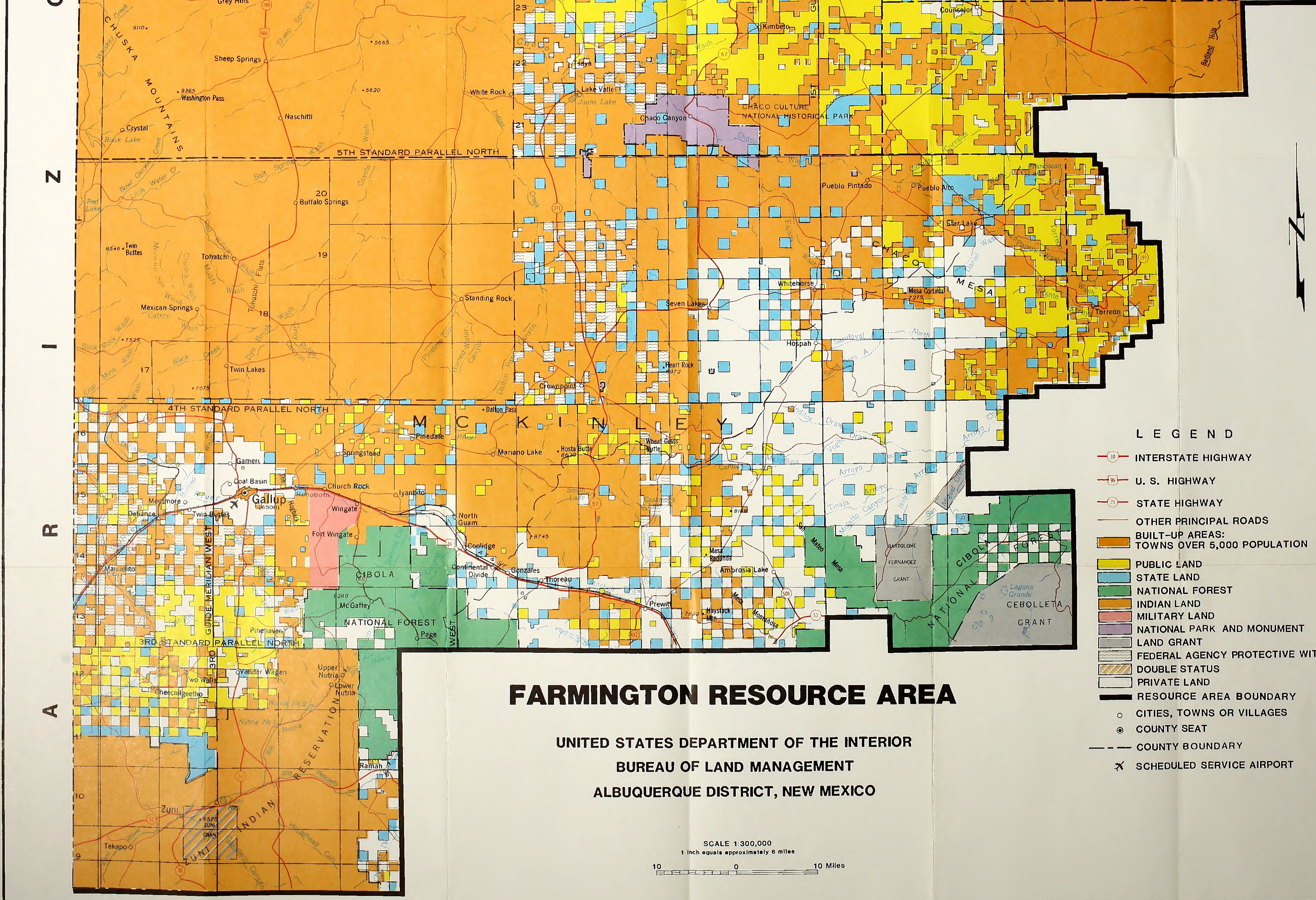

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- OTHER PRINCIPAL ROADS
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- 🟨 PUBLIC LAND
- 🟦 STATE LAND
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- 🟪 NATIONAL PARK AND MONUMENT
- ▨ LAND GRANT
- ▨ FEDERAL AGENCY PROTECTIVE WITHDRAWAL
- ▨ DOUBLE STATUS
- ☐ PRIVATE LAND
- RESOURCE AREA BOUNDARY
- ○ CITIES, TOWNS OR VILLAGES
- ◉ COUNTY SEAT
- – – – COUNTY BOUNDARY
- ✈ SCHEDULED SERVICE AIRPORT

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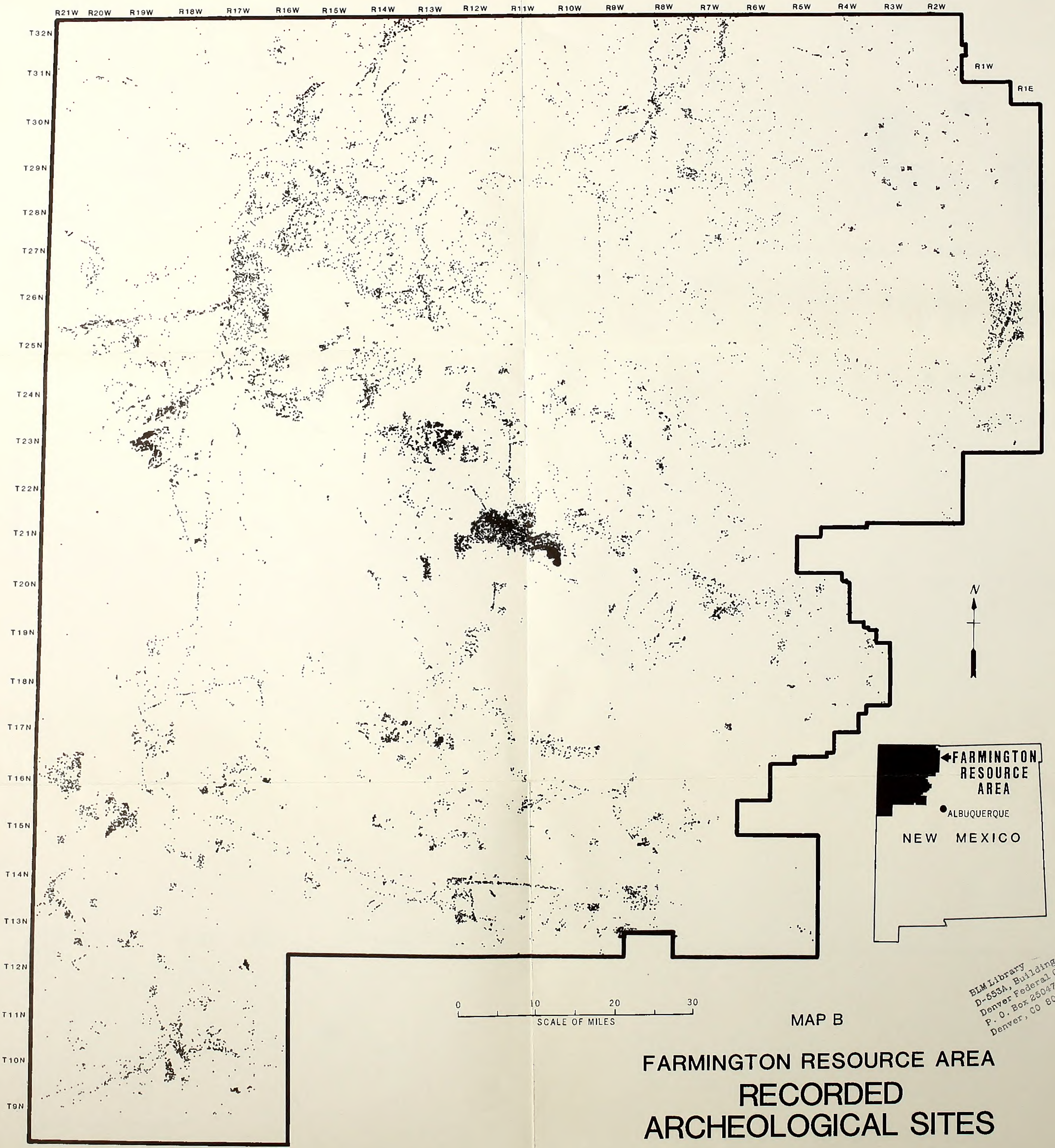

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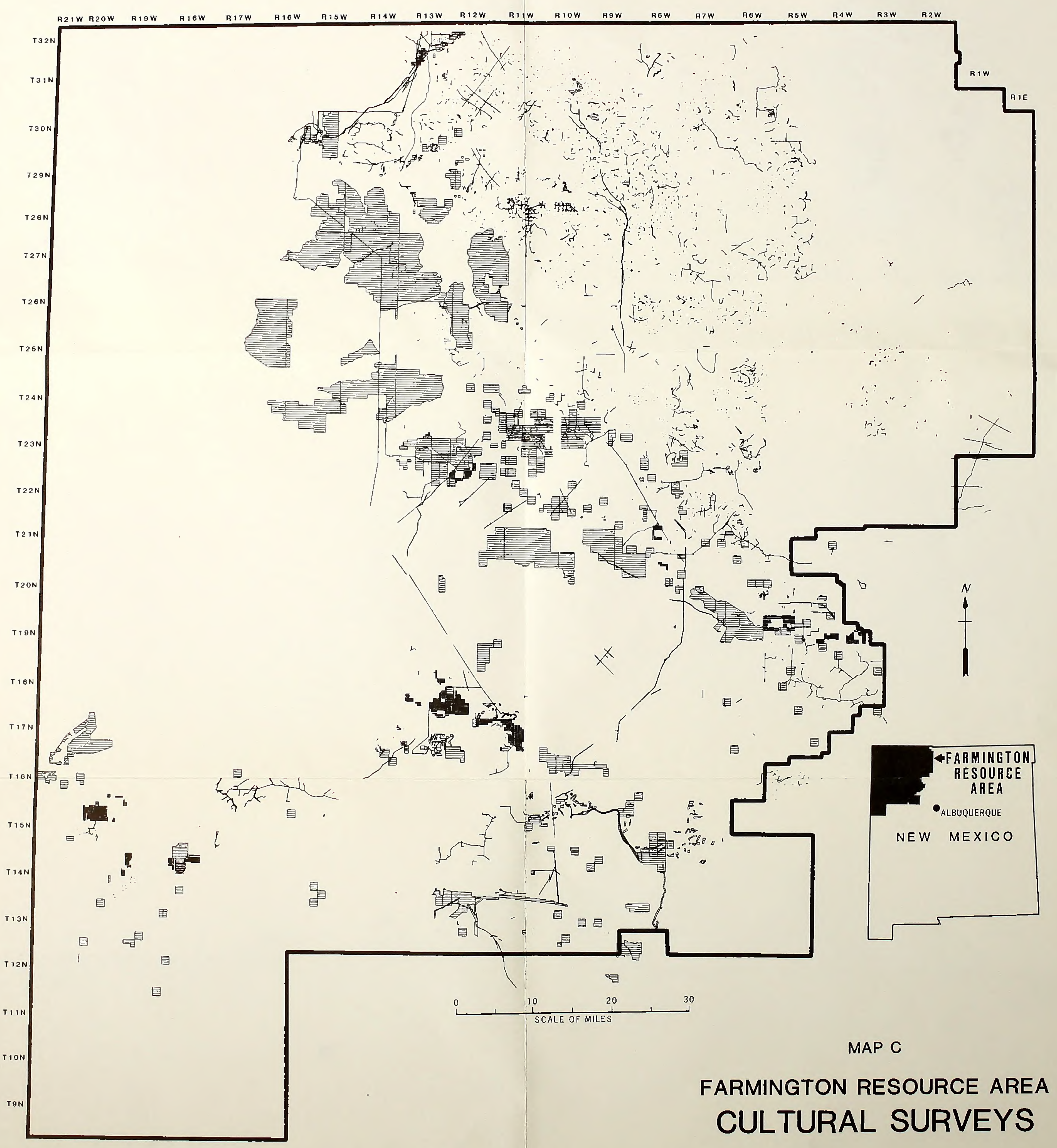

MAP C

FARMINGTON RESOURCE AREA

CULTURAL SURVEYS

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MAP D
FARMINGTON RESOURCE AREA
RESOURCE MANAGEMENT PLAN
COAL TRACTS

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